

Simplified Poultry Keeping



Published by

Poultry Service Department

D. H. GRANDIN MILLING COMPANY

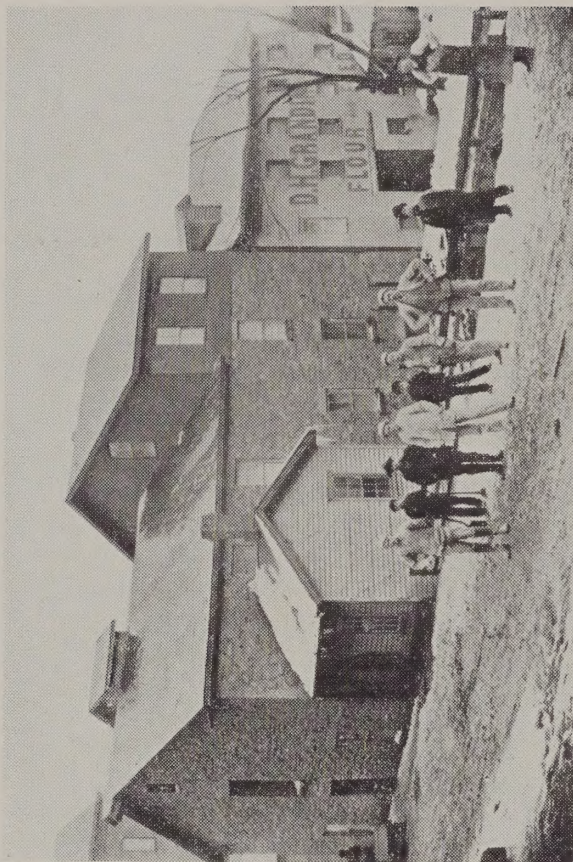
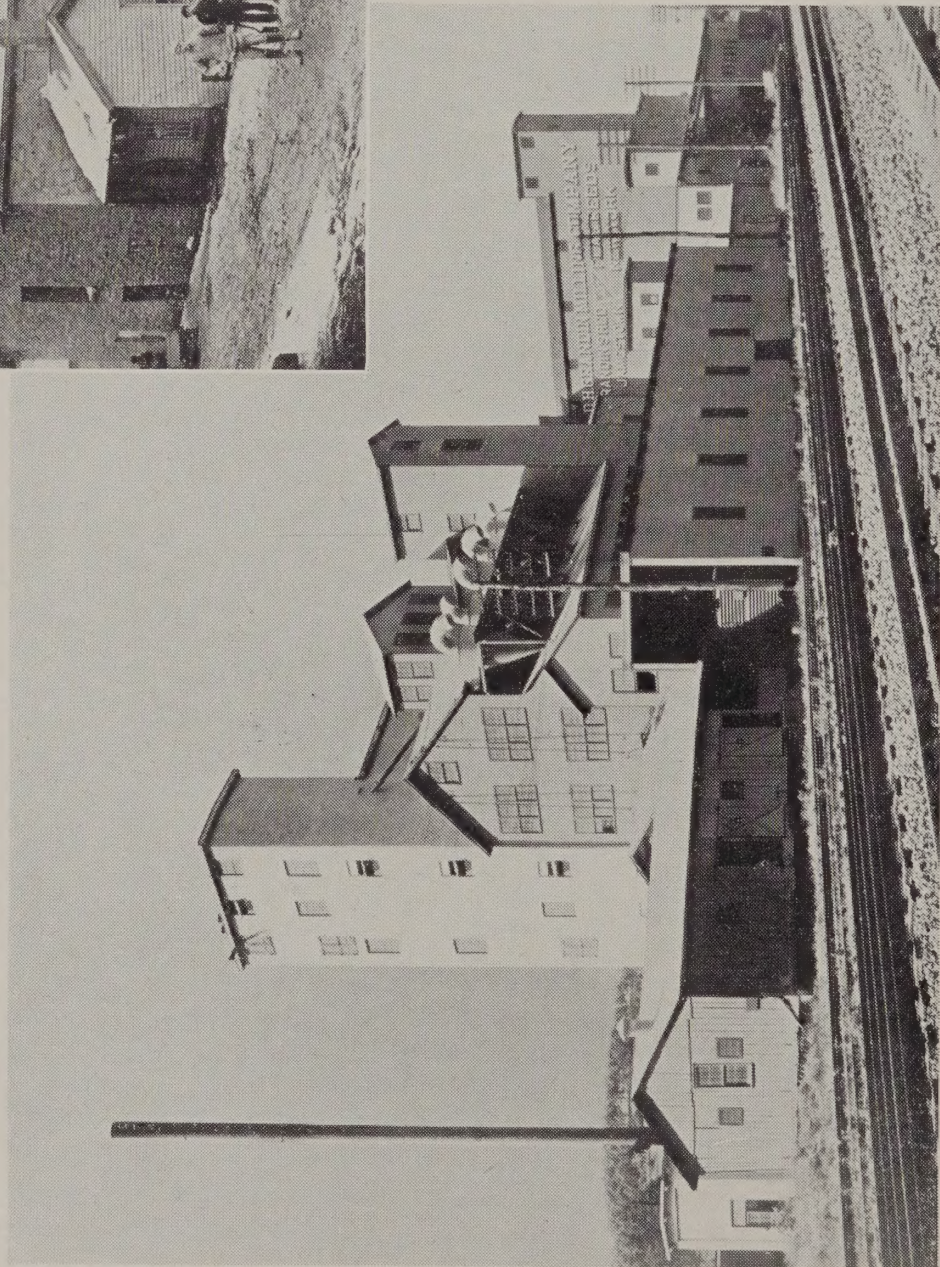
Jamestown, N. Y.



EDITION

1938

THE "OLD STONE MILL"
Built in 1833 — Destroyed by fire in 1913.



Our plant as it is today. We take great pride in the fact that down through the years, the business of the D. H. Grandin Milling Co. has been so conducted as to merit and win the confidence of those with whom we have had business relations.

LET'S TALK ABOUT **THE POULTRY SITUATION**

The calamity came! The period from November 1, 1936 to August 1, 1937 will long be remembered by those poultrymen who survived the rout of the poultry business. It became necessary to retreat before the onslaught of the combined forces of High Feed Prices, Low Product Prices and High Flock Mortality. However, the poultry business was not conquered. It is now reorganizing. Its advance this time, we hope and believe, will be more rational, and better planned. Having taken stock of itself, it will form an alliance with Sound Scientific Information, Good Business Practice, and Mother Nature. This combination of forces is invincible.

It is pleasing to us to know that those poultrymen who followed THE GRANDIN WAY came through the battle with at least whole skins.

In this, the 1938 edition of SIMPLIFIED POULTRY KEEPING, we are passing on to poultrymen the benefit of another year of our experiences and observations in the poultry business. *Take time to read it carefully. It will be time profitably spent.*

With best wishes to every poultryman, we present the 1938 edition of SIMPLIFIED POULTRY KEEPING.

D. H. GRANDIN MILLING COMPANY
JAMESTOWN, NEW YORK

WHICH BREED?

We are often asked by both beginners in the poultry business and those who intend to give it a tryout, which breed of birds we consider the best.

As a matter of fact there is no "best breed." Much depends on the strain within the breed. The man who buys a poor strain of Rhode Island Reds might say that Rhode Island Reds were "no good." Another, who bought an inferior strain of New Hampshires, Plymouth Rocks, or White Leghorns, might make the same statement. However, the fact remains that these are all excellent breeds. More time and attention has been given to the development of their productive traits than has been allotted to other breeds, though many of the others are both valuable and beautiful.

The poultryman's market should guide him in the choice of breeds. If he is catering to a market which demands white eggs, he should buy White Leghorns. If he wants to make a specialty of broilers, he should buy Plymouth Rocks or a "Rock-Red Cross." If very large capons, or roasters are to be produced, he would do well to consider Brahmas or Jersey Giants.

Rhode Island Reds, New Hampshires, Plymouth Rocks (both Barred and White) come under the heading of all-purpose breeds. They are heavy producers of brown eggs and excellent quality meat.

The splendid work done by the American Standard of Perfection should not be ignored. **It is possible to combine both the useful and the beautiful.** With their help we have the different breeds, each on account of its characteristics, filling a particular place either practical or ornamental.

As a matter of fact, there is no good reason why the weight, vigor, health and productiveness of a standard bred flock in the utility class, may not be as good as that of a flock of "just hens."

One might ask; why have Holsteins, Shorthorns, Guernseys, Jerseys, etc., instead of "just cows?"

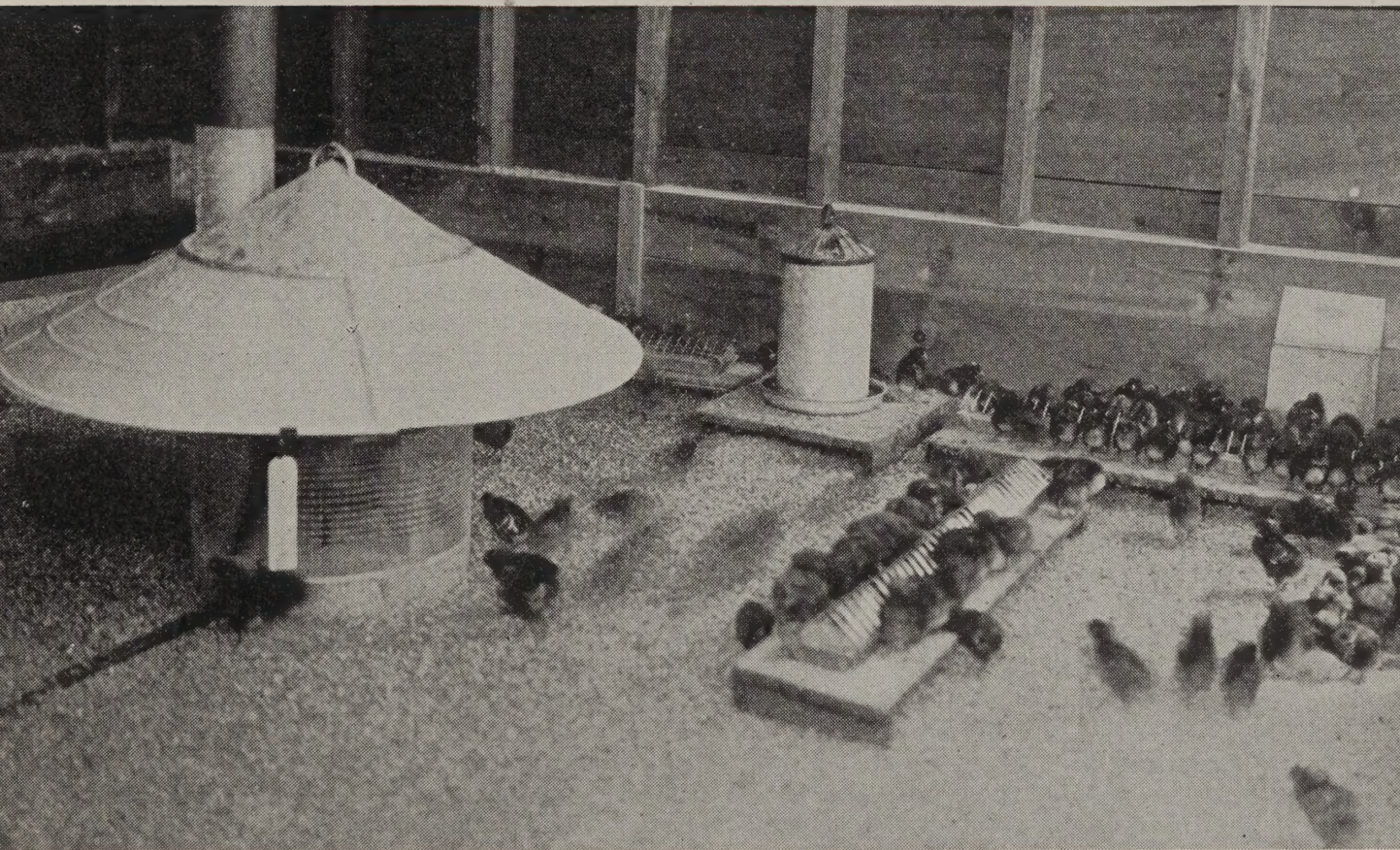
RESOLUTIONS OF A POULTRYMAN

THESE THINGS I WILL DO

1. When I get ready to cull my Leghorns, I will be amply supplied with crates. I will place the birds in the crates at night so that in the morning, I will be able to cull them quickly, with more accuracy, and less disturbance.
2. I will house no pullets with pale shanks. My experience has taught me that they add to my troubles and lessen my profits.
3. I will keep a simple record of my business. I will jot down every cent that I pay out. I will jot down every cent that I take in. If there is anything left after my bills are paid, I will call it my "labor profit."
4. I will keep after the rats.
5. I will keep my empty grain bags neatly folded on a rod. I know that by doing so, I can earn a noticeable sum during the coming year.
6. I will give my flock "the once over" daily and remove the undesirables. I can make good pay doing that.
7. I will keep my place tidy. I know that visitors will get a more favorable impression, and that my business will be increased thereby.
8. I will select the birds that I am going to dress for market at least twelve hours before I kill them, and I will select good ones, the kind that satisfy my customers. The poor ones I will sell to the buyer of live poultry.
9. I will provide myself with an incinerator. I know that it is not only disgusting to see dead birds lying around, but I am well aware of the fact that it is a dangerous practice.

10. As my finances allow, I am going to buy every appliance that is reasonable in price which will save me steps.
11. I am going to keep a pail which I have discarded on account of a leak, hanging in my grain room. Into this pail I will throw my strings and tags. This will help me to keep my grain room orderly and will save time.
12. I am going to provide myself with the hook from a canthook handle, to take out wire staples. It will save me a heap of cussing and time. I saw Bill Jones using one the other day and it certainly worked slick. Just a tap with a hammer and the staple jumped out of the post.
13. I will see to it that every building on my place is put in proper condition and equipped as it should be, before I will contemplate enlarging my plant.
14. I will rear no more chicks and winter no more layers than my houses will accommodate. Mother Nature has already chastised me enough for overcrowding.

LET'S TALK ABOUT BROODING CHICKS



LOCATION OF BROODER HOUSE—The brooder house should be built on well-drained land as near the dwelling house as possible. It should be located so as to be well away from the shade of trees or other buildings. Ample room should be allowed for two yards (not including those in front of the brooder house) in which the cockerels may be allowed to run in alternate years, in case they are kept for capons or soft roasters. Breeding cockerels should be placed in shelters on the range. The runs in front of the brooder house should be used *only* until the pullets go on the range.

THE BROODER HOUSE—There are various types of brooder houses. If the single brooder house is used it should be no smaller than ten by twelve feet. A house twelve by fourteen feet would be much better. The “permanent” or continuous brooder house has decided advantages over the single house in that it materially reduces construction costs and lessens the labor of caring for the chicks.

There is much to be said in favor of warm and cold room brooder houses. This idea gets the chick raiser closer to Nature. If the single brooder house is used the cool room may be much cheaper in construction. If the cool room equals the warm room in size, so much the better. There can be no doubt but that chicks when allowed access early in life to a cool room are much better feathered and much more “peppy.” They will run to the brooder stove for heat when they need it as they would do to the mother hen. Then too, the problem of expansion is taken care of in the best and cheapest manner. Better chicks can be raised in this way, and better chicks mean more money for the poultryman.

CHECKING EQUIPMENT—Poultrymen who plan ahead are the ones who get ahead. Long before the brooding season arrives, the equipment should have a thorough overhauling. One should make sure that his stock of water fountains and feeders is adequate. The brooder stoves should be examined. If any parts are needed, these should be on hand before the stoves are put in operation. This is a case where a stitch in time may save many more than nine.

BROODER STOVES—For a good and sufficient reason—dependability, coal burning brooder stoves are the most popular stoves in use today. Theoretically the oil-burning brooder stove has two distinct advantages over the coal-burning stove. One is steadiness of heat. The other is the smaller amount of labor involved in its operation. The electric brooder stove is being rapidly developed and has distinct superiority over both the coal-burning and oil-burning stove, especially for later hatches. It furnishes sufficient warmth for the chicks without overheating the room, which means better feathering. Practically no labor is involved in its operation.

The poultryman who is in the market for a brooder stove should look the field over carefully before buying. If you think that you want an oil-burning, or an electric stove, get it on trial if possible. **At any rate don't buy a cheap stove.**

Whatever type of stove the poultryman uses, he should clean it immediately after he gets through with it and store it carefully. It is a good plan to give both the stove and pipe a coating of oil or blacking before putting them away.

EQUIPMENT—The job of raising chicks should not be tackled until one is amply supplied with good brooder houses, stoves, water founts, and feeders. A good businessman will compare the different types of feeders, waterers, etc. He will then buy the best at the lowest possible price. In so doing he automatically lowers his overhead expense. A mechanic who does fine work is always supplied with good tools. In like manner the chick raiser must be well equipped if he is to use his time and money to the best advantage.

START RIGHT with ADEQUATE EQUIPMENT or DON'T START at All.

BREEDING STOCK—Countless pages have been written and still may be written on the subject of poultry breeding. Lack of space, however, compels us to merely touch upon the subject here.

It is poor business on the part of anyone to attempt to raise chicks unless their parents are vigorous and healthy. This is the first point to be considered. The parents should be profitable producers. Too much stress should not be laid on the fact that chicks are from trapnested or pullorum free flocks. The trap nest, in spite of its wonderful possibilities, has done more harm to poultrymen than good. A beginner can mate from records, but **real skill** is required to select those birds that will live, lay a profitable number of eggs, and produce strong chicks.

If you are a buyer of day-old chicks and are fortunate enough to locate a healthy flock that is reasonably productive, **order chicks from that flock early.**

As the matter stands today, we advise the buyer of day-old chicks to look more for stamina and health than for high production.

SANITATION—Cleanliness has a tremendously important bearing on the success of every poultryman. It is not difficult to keep brooder houses clean and the chick feeders and fountains in the condition that they should be kept, **provided these matters are attended to with regularity.** The well equipped poultryman who cannot do this has more chicks than it is good business for him to have.

LITTER—The poultryman is often in a quandary as to what material to use for litter. Shavings (preferably dowl shavings) seem to be the most satisfactory material. In case these are not available, clean sharp sand of the grade used for concrete work gives excellent results, both in the brooder house and laying house. A generous supply should be placed under cover in the fall in order that it may be readily accessible when needed. When two inches of sand is placed on a brooder house floor no cleaning will be required for the first month. If the sand is stirred occasionally with a garden rake it will keep dry. During that period there will be no great accumulations of droppings and much time and labor will have been safely saved on the cleaning end.

WATER—When the high moisture percentage of the composition of a chick's body is taken into consideration, is it to be wondered at that we urge our customers to provide their chicks with plenty of water? Water is the cheapest ingredient that goes into the making of a chick's body, yet this is the point where vastly too many poultrymen fall down. They do not provide their chicks with an adequate number of drinking fountains. They fail to keep them clean, and do not keep those that they have full of water. Too much dependence should not be put on the feed. **Chicks will not do well on any ration unless they are amply supplied with water.**

The chill should be removed from the water provided for baby chicks until they reach the age of one week.

BROODING SUGGESTIONS—Before your baby chicks are placed under the brooder stove, be sure that you are ready for them. Being ready means that your house has been **THOROUGHLY** cleaned and disinfected and that your stove has been running four days with a temperature of approximately 95 degrees at the edge of the hover. Construct an enclosure of three-ply roofing paper, beaver-board, heavy cardboard, or wire covered with burlap, eighteen inches high around the stove at a distance of two feet from the edge of the hover. Place the litter within this circle two days before the arrival of the chicks so that it will be warm and dry. The feed hoppers should be filled at the same time. **One inch of feeding space per chick is a good rule to follow.** Four drinking founts—one in each quadrant and providing one-half inch of drinking space per chick will be sufficient. Be sure to add enough warm water to remove the chill each time that the water founts are filled.

After the baby chicks have been placed within the enclosure, pick up a few and one at a time place their beaks in the water. Do the same in regard to the mash. In a few moments all of the chicks will be eating and drinking. There will be no danger of the chicks eating the litter if the proper amount of feeding space has been provided and the right kind of hoppers (preferably those with grill top) are kept well filled with **GRANDIN'S CHICK STARTING RATION** or **GRANDIN'S START-TO-FINISH MASH.**

There are a great many different styles of feed hoppers and drinking fountains on the market, good, bad, and useless. Buy good ones, take care of them and they will last a lifetime. The drinking fountains should hold not less than two gallons each and the pans should be round. The larger fountains are better for two reasons. In the first place the chickens are much more likely to be constantly supplied. In the second place, the proper temperature of the water can be maintained for a longer time on account of the larger bulk.

There is a decided advantage in the night lighting of chicks. A five-watt bulb or a dimmed lantern suspended over the brooder stove, results in much more even distribution of the chicks when they are bedded down for the night.

At the end of two or three days spread litter over the remainder of the brooder house floor and remove the circle from around the brooder stove. Place the feed hoppers and fountains one foot farther from the brooder stove each day until they are close to the walls. This arrangement will have a tendency to make the chicks more active. Keep your fire going as before but lower the room temperature. A good fire and low room temperature means happy chicks. When the room temperature is too high the baby chick loses much in vitality, and so becomes a ready victim of that dread disease, coccidiosis. A baby chick can withstand considerable cold if it can get to the heat when it so desires. Don't kill your chicks with kindness. **VASTLY MORE CHICKS ARE RUINED BY OVERHEATING THAN BY CHILLING.** If you have observed a mother hen who stole her nest

and appeared on the scene with a brood of baby chicks in the fall, I think you will agree that a chick will thrive and grow in low temperature, provided that it is able to get warm whenever it desires to do so.

Chick-size grit should be before the chicks at all times in a separate hopper. We recommend the use of granite grit because it is insoluble in acids and so does not break down the carefully prepared mineral balance of **GRANDIN'S POULTRY FEEDS**.

We are strongly of the opinion that grit should **never** be placed on top of the mash. **There is absolutely no way of determining just how much grit should be used in this manner.** Grit, we know, is not a food. When it is available in a proper receptacle, the birds, whether young or old, will take the **right** amount to aid them in the digestion of their foods.

CULLING—Begin culling as soon as the chicks are taken from the incubator. Look them over every day thereafter until they go on the range. Kill every inferior chick that you see. The sooner chicks of this type are disposed of, the better for their owner's pocketbook. Inferior chicks never "come." Their presence constitutes a real menace to the health of the good chicks — the sole source of profit.

EARLY ROOSTING—Practically every poultryman has had his troubles in getting his chicks to go to roost. Much of this difficulty is brought about by the fact that the roosts are not provided early enough in the life of the chicks. A chick three weeks old will take quite a sizable hop. That is a good time to put in a roost. An easy and practical way to provide roosts is to screw an eight-inch board, the top being eighteen inches from the floor, on each side of the brooder house starting from the back. This board should be long enough to provide for four roosts ten inches apart. The roosts should be two by three inch joists. The board should be notched to accommodate the roosts edgewise. The top of the roosts will then be flush with the top edge of the supporting board. In case the brooder house is more than twelve feet wide it will be necessary to have a support in the center of the roosts. Only one roost need be put in at first. The others may be added as needed, but **be sure to put in that first one early.**

COCCIDIOSIS—Chicks that are properly fed and cared for in the manner described in this booklet are not liable to be afflicted with acute coccidiosis, however, the careful poultryman will keep a watchful eye on his flock. He will avoid moist litter in the vicinity of his drinking fountains by elevating them on platforms covered with three-fourths inch hardware cloth. He will keep his litter dry. He will not overload his feeders. In this case, the old adage, "an ounce of prevention is worth a pound of cure," means a lot.

BAREBACKS—Some strains of chicks are slower feathering than others, however, a tremendous number of barebacks are created by overcrowding and overheating.

VENTILATION—Chicks need clean air to breathe as well as clean food to eat and clean water to drink. There is a tendency on the part of many chick raisers to give this matter little thought. They fail to realize that when a brooder stove is in operation that oxygen is being consumed and noxious gases are taking its place. In their homes they see to it that fresh air is provided. The chicks need it as much as humans. **Many thousands of them die yearly from lack of clean air.**

Chicks that are suffering from monoxide poisoning are weak, drowsy, and have impaired appetites. In some cases they gasp after moving about, then fall with heads thrown back. Sometimes they die in convulsions. **PROVIDE YOUR CHICKS WITH FRESH AIR.**

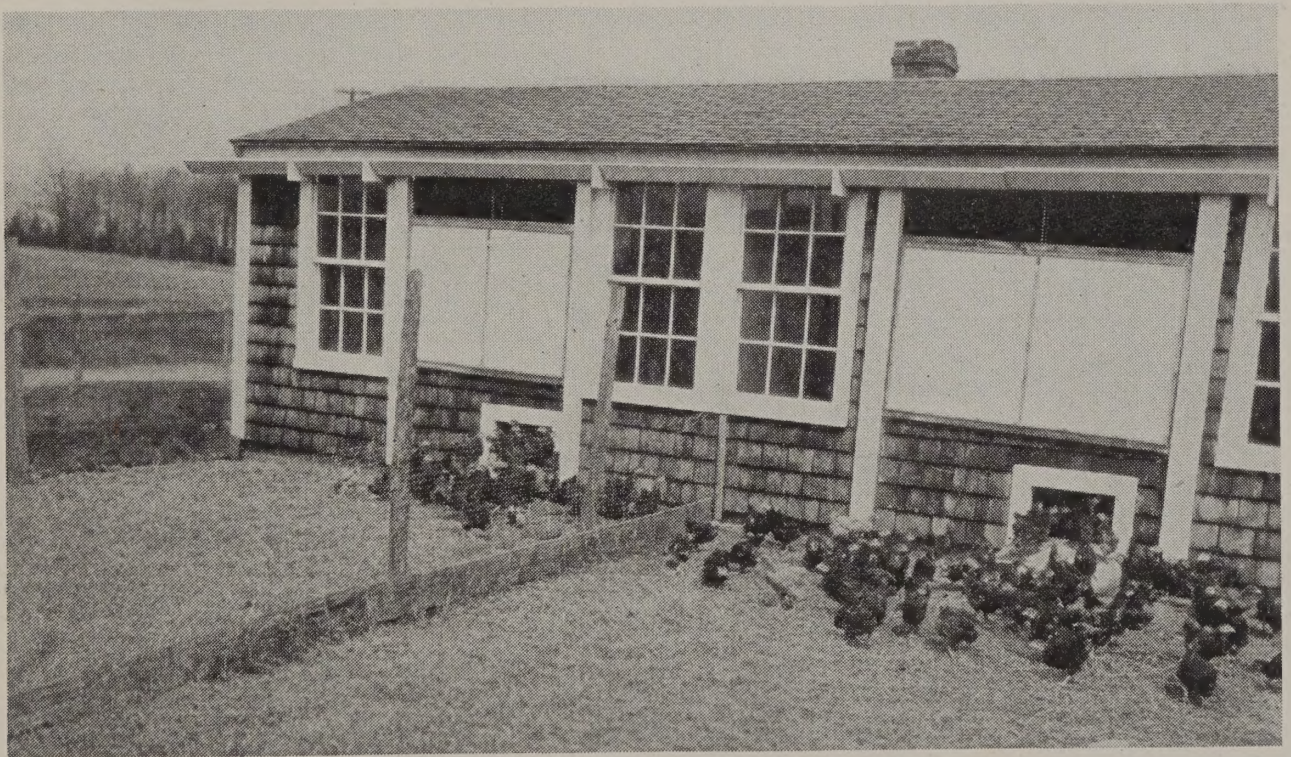
THE PROBLEM OF EXPANSION—When a brood of chicks of the proper size (250) is placed under a hover in the right sized brooder room (not less than 12' x 14'), it seems as though too much space has been allotted to them. Four weeks later the situation is changed. The room seems to be of the right dimensions. At the end of seven or eight weeks, there are twice as many chicks in the room as there should be. Another room of the same size is needed for the cockerels which should be removed at this time. Unless that extra room is available, the poultryman is lacking for space in which to rear chicks properly. Hatches should be so timed that every room is kept full (not crowded) at all times during the brooding season.

We have never yet encountered a poultryman who had too much room. We have **too often** seen poultrymen who had too many chicks for their houses.

RUNTS—There are runts in every flock of chicks, regardless of the grade of breeding stock from which they were produced. It is logical, however, to expect fewer runts in chicks from first-class breeding stock than from chicks of doubtful parentage. Runts can be produced from any class of breeding stock by overcrowding, overheating, and poor ventilation. If you haven't the "nerve" to kill these runts, it is advisable to segregate them in one flock. Their chances of coming through are greatly improved by so doing.

WIRE PLATFORMS—In general we are not in sympathy with the use of wire platforms. In the first place, the expense involved in their construction and upkeep is too great. In the second place, it has been clearly proven that they are not as valuable as a safeguard against disease and parasites as many suppose.

GRASS RUNS—Runs should be provided in front of the brooder house of at least the size of the brooding pen. Early in the season these should be provided with windbreaks of boards or bags opened in the seams and attached to the wire on the North and West sides, in order that the chicks may spend more time in the open. As soon as the pullets are removed to the range, these yards should be **thoroughly** cleaned, lime slightly stirred on top and sown with a mixture of Red Top and clover. The vegetable growth, the action of the sun, rain, frost and snows, will put them in excellent condition by the time that they are again needed.



SAND RUNS—If the poultryman does not want to seed his runs each year he will get satisfactory results by enclosing them with eight-inch boards and covering them with five or six inches of coarse, sharp sand. If these boards are painted with crankcase oil before being nailed to the posts they will last a great many years.

In the fall two inches of this sand should be removed and the same amount of clean sand put in its place. By following this plan the poultryman will be in readiness for his early chicks when they need to get out-of-doors. Owing to frost and road conditions in many localities it is not good business to wait until spring before renewing the sand runs.

Sand runs are excellent for early hatched chicks. They can be gotten out-of-doors sooner than on wire or grass runs, because the sand is warmer to their feet and they enjoy the opportunity to scratch and burrow. Provide a windbreak.

CARE OF MASH HOPPERS—A mistake that is often made by poultrymen is placing fresh mash on top of the old. If this program is kept up the day eventually comes when there will be some stale mash at the bottom of the hopper, and, if eaten by the chicks, will cause intestinal trouble. The better way to do is to allow the hoppers to get entirely empty once each day. If they are not entirely empty the mash which remains should be scraped to one end of the hopper.

CARE OF DRINKING FOUNTAINS—A shredded copper ball on a handle approximately six inches long is an excellent instrument for cleaning chick drinking fountains, water pans, and buckets. These balls can be bought at most hardware stores.

FLOOR DRAFTS—Floor drafts cause chilling and chilling results in an outbreak of diarrhea. Floor drafts are caused when the brooder house door is opened. This condition can be overcome by placing an eight- or ten-inch board between cleats fastened to the inner casing of the door. When preparing the brooder house for chicks the poultryman should be careful to cover every crack in the walls of the brooder house.

BATTERIES—Batteries certainly have a place in poultry raising as it is carried on today. However, we feel that their importance has been considerably exaggerated. Chick batteries are valuable to hatcherymen as they afford a fine storage place for surplus chicks, and chicks that are left on their hands on account of cancelled orders. These chicks can be held in batteries at minimum expense until sold. This, we think, is the limit for the economical use of batteries. We believe that chicks started on the floor are superior to those kept in starting batteries for two weeks. We are strongly of the opinion also, that broilers raised on the floor have firmer flesh and shrink much less when shipped alive or dressed. Here again Mother Nature says "no" to putting too many chicks within a given space. Wouldn't it be more logical to have fewer and better chicks?



INCUBATION—Many good eggs are spoiled in the incubator. The modern incubator of the standard class is so scientifically constructed that even a novice can get good hatches if only he will follow the instruction of the manufacturer, or at least, this is true if he starts in with a new and properly constructed room.

The incubator room should be kept **CLEAN**. The man who is hatching for himself, or is selling day-old chicks, should do no custom hatching.

The incubator should be kept **CLEAN**. The incubator manufacturer will tell the operator just how to keep his machine in a perfect sanitary condition. In this way, Navel-Ill and Mushy Chick Disease are avoided.

When the chicks are removed from the incubator, they should be placed in clean boxes, preferably new ones. If old ones are used, new pads or clean shavings should be provided. **START RIGHT.**



This man is getting "a big kick" out of his flock. He enjoys looking them over.
His birds were raised **THE GRANDIN WAY.**

VARIATIONS MUST BE MADE TO ALL RULES. THE CHICK RAISER WITH GOOD JUDGMENT WILL KEEP A WATCHFUL EYE ON HIS FLOCK. HE WILL KNOW WHEN TO SLOW DOWN AND WHEN TO INCREASE THE HEAT. HE WILL KNOW WHEN AND HOW MUCH FRESH AIR IS NEEDED. IN SHORT, HE WILL SEE TO IT THAT HIS CHICKS ARE PEPPY AND HAPPY AT ALL TIMES. WE FURNISH THE RIGHT KIND OF FEED AND OFFER THE BEST ADVICE THAT WE KNOW HOW TO OFFER, BUT WE CANNOT FURNISH THE JUDGMENT WHICH GOES WITH SUCCESSFUL CHICK RAISING.

DON'T WAIT TO BUILD RANGE SHELTERS UNTIL YOU NEED THEM. BE READY ON THE RANGE WHEN THE TIME COMES TO PUT YOUR PULLETS AND BREEDING COCKERELS OUT IN THE OPEN.

LET'S TALK ABOUT THE RANGE

LOCATION OF RANGE—It is the aim of every poultryman to raise strong, rugged pullets with the conformation and vigor necessary to lay profitably and still have the required reserve of vitality to reproduce their kind. Pullets of this type cannot easily be raised on land that is heavy and poorly drained.

The ideal range must be of sufficient area—at least one acre for every 500 pullets. It should be well drained and well sodded. If the soil is a sandy loam so much the better, because this type of soil is more absorbent and much more readily cleansed by the action of the sun and rain. If the grass is tall it should be mowed. This will cause the pullets to range farther and at the same time they will be provided with a short and tender growth of grass which they will consume much more readily.

THE RANGE SHELTER—Too much cannot be said in favor of the range shelter. This idea is directly in line with Nature's program. Better pullets can be grown in them than in colony houses. Economically there can be no question as to their value. Pullets can be reared at less expense in this manner and with much less labor than in houses. The more pullets one has from which to select his layers the better off he is sure to be. On the point of sanitation there can be no argument as between the range shelter and the colony house. The **GRANDIN RANGE SHELTER** is an excellent type of shelter and costs very little to construct. (Plans for the **GRANDIN RANGE SHELTER** will be sent free upon request.)

Before the range shelters are put into use each year they should be carefully sprayed with a commercial mite destroyer and the roosts painted with carbolineum. Throughout the summer the poultryman should frequently inspect his shelters to make sure that the lice and mites are not robbing him of his profits. The range shelters should be placed at least one hundred feet apart.

A temporary enclosure should be placed around each shelter about five feet away when the pullets are put on range. This retaining yard need be kept in place only for a period of three days. At the end of that time, the pullets will have become acquainted with their shelter, having seen it from all angles. It requires but a few moments to put up these temporary yards but it is time well spent, because in this way, pullets return to their own shelters at night and the losses caused by crowding in shelters is done away with.

GRADING PULLETS FOR THE RANGE—Only pullets with good prospects should be placed on the range. Those that do not "shape up" should "go to pot" with the cockerels. Daylight is needed for a good job of grading. For that reason, we recommend moving pullets to the range in the daytime.

RANGE SANITATION—If, when the time arrives to put the pullets on the range, the grass is too tall it should be mowed.

Ranges, as well as poultry houses, should be kept clean. During the heat of the day birds cluster about the range shelter. Consequently, droppings accumulate rapidly in the area four to six feet from the shelter on sides and ends. If allowed to remain, the ground becomes slimy during wet periods. This unhealthy condition can be easily avoided if the poultryman will rake this space weekly with a fine-toothed steel lawn rake, choosing a day when the droppings and ground are thoroughly dry. This is a small job if done regularly, but an **important one**. It is the most logical and cheapest way to fight worms, range paralysis and the various parasitic diseases that afflict poultry.

As soon as the range shelters are vacated in the fall they should be removed to the spot which they are to occupy the next season. If you want to play safe, stake them down. The wire fence should be rolled up carefully and placed under cover for the winter. The entire range should then be raked over with a lawn rake. The spot on which the range shelter stood during the season should be thoroughly cleaned and the holes about the shelter made by burrowing filled with loam.

In the early spring when the ground is bare, but still freezing nights, sow grass seed on all the bare spots. A good mixture for this sowing is 1 peck Timothy, 3 pounds Red Top, 3 pounds Red Clover. There is no need to rake in the grass seed. The action of the frost will give you an excellent "catch."



SHADE ON THE RANGE—Shade on the range is important. Natural shade is much to be preferred, but in case that cannot be had, good results are obtained by plowing a strip the full length of the range in the center, of sufficient width to allow the planting of four rows of corn or sunflowers. Wire should be run on each side of this strip until the plants have reached the height of two feet. Then the wire should be removed. The pullets will enjoy this shade. Their growth and splendid feathering will well repay the poultryman for the time and expense that he has incurred in providing it.

CARE OF MASH HOPPERS—Extreme care should be taken that pullets on the range do not eat any stale mash. When possible the hoppers should be allowed to get empty, or nearly empty, every day. If this cannot be done all of the mash that remains should be scraped to one end of the hopper before the fresh mash is put in. **Fresh mash should never be placed on top of the old.**



A coal hod is the best receptacle to use in distributing mash or hard grains.

FEEDING ON THE RANGE—Hoppers of sufficient capacity (two hoppers five feet long) should be placed near each range shelter filled within an inch of the top with **GRANDIN'S GROWING MASH** or **GRANDIN'S START-TO-FINISH MASH**. The grille type of feeder is the most satisfactory because birds can eat more readily from them. If the feed gets wet during a rainy period no harm has been done. If necessary pour off the water and do not put in more mash until the feeders are empty.

Feeding hard grains on the ground is a dangerous practice, because it is through the medium of droppings that most poultry diseases are transmitted. The most satisfactory method of feeding hard grains is to provide each shelter with a "V" trough ten feet long, using six and seven inch boards. A portion of the hard grains may be placed on top of the mash.

CULLING ON THE RANGE—The wide awake poultryman will find time to look over his birds on the range every day. When he discovers a bird that is sick he will kill it. When he discovers one that is not making the grade as to growth he will segregate it and turn it into cash at the first favorable opportunity.

WATER ON THE RANGE—When water is piped on to the range it is a common practice to lay the pipe on top of the ground. That means that on a hot day when the pullets (even as you and I) want, and need, cold water, they must drink hot water. It is a much better plan to plow a furrow and drop the pipe into it. The sod can quickly be laid back over it with a manure fork or a hand potato digger. This slight extra expense and effort means much to the poultryman's pocketbook.

Nothing better can be found for drinking fountains on the range than open galvanized pans, approximately fifteen inches in diameter with perpendicular sides about five inches high. Pullets drink from them readily and it is very easy to keep them clean. Pans of this sort can be bought at hardware stores or poultry supply houses.

On hot days the pullets relish a drink of cold water even as you and I. The fact that the drinking pans are full of water is not enough. They should be emptied three times daily and refilled with fresh, cool water. They should be scrubbed once every day.



Brushes like the one pictured above can be bought for ten cents. Every poultryman should have an ample supply of them. No better investment can be made.

TEMPORARY RANGE NESTS—Since we are not in sympathy with the modern practice of housing pullets as soon as they begin to lay, we believe that it is a good idea to provide nests on the range as soon as the pullets begin to “comb up.” If the nests are provided at this time, they will look them over and know where to go when they begin to lay. This means that there will be few eggs laid on the ground and that the pullets will be nest broken when they are housed.

Nest shelters of the type illustrated herewith are easily and cheaply constructed. The sills are skids (2" x 4") with the ends rounded, so that they may readily be moved from place to place. The nests are orange boxes, six on each floor, thus providing twenty-four nests.



Type of nest shelter used on range at THE GRANDIN DEMONSTRATION FARM.

On the range the pullets (and cockerels) should be eating as much hard grain as mash. They should be given all of **GRANDIN'S SCRATCH GRAINS** that they will eat at night and one-half of that amount in the morning. When the feeder has gauged their requirements he can save time and labor by doing all of his feeding of hard grains at night.

On excessively hot days, especially in the case of Leghorns, the amount of hard grain fed should be cut in two, or wholly eliminated. The birds are not active enough to properly assimilate hard grains. If given a full feeding, indigestion with attendant losses may result. This is one of the reasons why we are opposed to the cafeteria system of feeding hard grains on the range.

LATE MATURING PULLETS—The question as to whether or not too much stress has been put on the early maturity of pullets is worthy of discussion. It is our opinion that the late maturing pullet (seven months) has been much maligned. The poultryman who has doubts on this subject should, when housing his pullets, leave the late maturing birds on the range as late as possible. He should then place them in brooder houses and make a careful checkup on them. He will be surprised to learn how many of these birds will develop into soft, sturdy, and profitable layers. Many of them he will decide to be good enough for his breeding pens. The remainder will bring good prices on the Thanksgiving or Christmas markets.

THE KIND OF PULLETS TO HOUSE—At the end of six months, while not in any sense mature, pullets have practically made their growth. The poultryman has their bodies in recompense for the food consumed. No matter how good their breeding and care, when housing time comes a certain percentage will have failed to make the grade. This is the **last** chance to recover a profit on pullets of this type. Only those pullets that are well feathered, have bright prominent red eyes and possess heavy bones and well muscled, plump bodies

should be placed in the laying house. All others should be sold for meat, not to the unsuspecting novice as layers.

WHEN TO HOUSE PULLETS—We advise leaving the late hatched pullets on the range until “the last gun is fired.” The vitality stored up on the range will help them to overcome the handicap of a poor start in life.

The early hatched pullets should be housed about the middle of September. If the poultry houses are provided with yards, and we believe all should be, these pullets should be allowed the run of the yards. In case one has a double deck house the early hatched pullets should be graded closely when brought in from the range. Those that grade as breeders should be placed on the lower floor and allowed to go outdoors until late in the season. Those that are to be kept for egg production should be placed on the upper floor.

Immediately upon being housed, all pullets should be provided with **GRANDIN'S GREEN FEED** in order to avoid the danger of cannibalism.

GRADING PULLETS FOR THE LAYING HOUSE—A satisfactory method of grading pullets for the laying house is to close the shelters, containing the birds which one plans to house the next day, some time during the evening. It is a good plan to be on the job as early as possible the next morning. One man removes the birds from the Shelter and passes them to the second man. Those that pass his examination, he hands to a third man who puts them in crates. Those birds that fail to pass are dropped on the ground to receive consideration at a later date. As soon as the shelter is emptied the doors are fastened open and they pass to the next shelter.

This is the time and the place for the first culling.



The owner of this VERY FINE flock is a GRANDIN user. In his management program he has not followed THE GRANDIN WAY to the letter. He would have done still better if he had segregated those males.

GRANITE GRIT, AND OYSTER SHELLS SHOULD ALWAYS BE KEPT BEFORE THE PULLETS WHILE THEY ARE ON RANGE.

LET'S TALK ABOUT FEEDING AND MANAGEMENT IN THE LAYING HOUSE



HOUSING REQUIREMENTS—The character of the house in which hens are kept has a decided bearing on the profits which may be obtained from them. It is reasonable to expect birds that are kept in a well-ventilated, well-insulated and well-lighted house to lay more eggs than their sisters of the same breeding that are kept in a cold, damp, drafty and poorly-lighted house and fed on exactly the same rations. The difference in production soon takes care of the difference in housing cost.

THE GRANDIN LAYING HOUSE is designed to supply the demand for a laying house which shall be economical in construction and embody the essential principles of correct housing for layers.

LOCATION OF LAYING HOUSE—The laying house should be located on well-drained land and so placed that ample yard room may be had at both front and rear. These yards should be occupied in alternate years. There can be no argument as to the advisability of allowing those layers that are to be kept over to go out-of-doors during the summer months, nor has it clearly been proven that birds that are kept solely for laying do as well when continuously housed if the element of flock mortality is taken into consideration. Here again Mother Nature enters into the program.

FEEDING PROGRAM—The first month in the laying house is a critical period. **Cannibalism must be avoided.** Those pullets that are on **THE GRANDIN THREE-MASH SYSTEM** of feeding should be fed **GRANDIN'S GROWING MASH.** In the case of those that were started on **GRANDIN'S START-TO-FINISH MASH,** no change ever need be made for production.

At the end of the month those pullets that are six months old or older and being fed **GRANDIN'S GROWING MASH** should be changed to **GRANDIN'S LAYING MASH.**

GRANDIN'S SCRATCH GRAINS should be fed on top of the mash and in V-shaped troughs at night in such amounts as the birds will clean up within a period of one-half hour. In the morning one-half of this amount should be scattered in the litter. Let up gradually on the morning feeding. At the end of six weeks, the pullets should be getting all of their hard grain feeding at night.

In order to replace the roughage which they were getting on the range, a separate hopper should be provided and kept well filled with **GRANDIN'S GREEN FEED.**

The poultryman who hatches his own chicks, sells day-old chicks, or produces eggs for a hatcheryman should turn to page 30 of this booklet and read what we have to say about **GRANDIN'S BREEDER MASH.**

WATER—No better, more sanitary, or economical drinking device has yet been discovered than the sixteen-quart pail partially sunken in a stand 30 inches square on top and 18 inches high.

LIGHTS FOR LAYERS—Lights are a great help in lowering the cost of winter eggs. When the weather is cold the layers need more feed than they do in moderate or hot weather. In winter the days are so short that the time for consuming that extra feed is not adequate. The hen should have sufficient time to eat the food required for her bodily needs beside consuming the material for making eggs.

Two forty-watt bulbs with reflectors for a twenty-foot room spaced 5 feet from the ends in the center of the area between the edge of the dropping board and the front wall will give an ample amount of light. A separate line of BX cable drawn in a line perpendicular to the front edge of the dropping boards carrying one ten-watt bulb in the center on a separate switch constitutes a satisfactory lighting system. When the front lights are switched off and the dim light switched on the birds immediately go to the roosts and distribute themselves without confusion or injury. In our own experiments this system of lighting has proven infinitely superior to the use of dimmers and is well worth the extra cost involved.

How much use should be made of lights and whether they should be used in the morning or at night are much discussed questions. For the average poultryman it seems to us that night lighting of layers is the best method to follow. When the hen gets down from the roost in the morning in cold weather she should have immediate access to clean fresh water from which the chill has been removed. The normal poultryman is not anxious to get up in the wee hours of winter mornings to see that his birds are provided with clean water of the right temperature. If the lights go on automatically at four o'clock, the hens must wait for him to get up before getting water or they must drink stale water from heated insulated fountains.

There is another advantage in night lighting. The poultryman gets up at daylight. He is on the spot and he knows just when to turn the lights on and when to turn them off in order to give his birds the exact length of day which he thinks they should have. The amount of daylight will vary according to the season and weather conditions. In following the night system of lighting the poultryman is "on deck" all of the time. When he snaps on his dim lights he can empty his water buckets, see to the room ventilation and go into the house with the feeling that all is secure for the night.

As to the number of hours of light that should be given hens there is room for debate. Too many hours are worse than none at all. There is a happy medium, however, which brings gratifying results. Twelve hours of light seems to give the best results for breeders. Fourteen hours of light for birds that are

kept solely for egg production is sufficient for the maintenance of proper body condition and profitable production.

CULLING IN THE LAYING HOUSE—The poultryman who is “onto his job” will keep a watchful eye on his flock. He will immediately remove and destroy a bird that is out of condition. He will market the quitters. He will have some good birds in reserve in one or more of his brooder rooms that he can use to replace those that failed to live up to his expectations.

SANITATION AND CLEANLINESS—Cleanliness in the laying house is an important consideration for every poultryman. Those who allow their houses to get in a filthy condition and overridden with lice and mites lack business acumen.

The dropping boards should be cleaned twice weekly—a daily cleaning would be better. The drinking receptacles should be cleansed daily and be kept well filled at all times. So much of a poultryman’s success depends on the **amount and condition** of the water that he furnishes his layers that it is difficult to understand why so many are careless in this respect.

At least once each year the good poultryman, like the good housewife will clean house **thoroughly**. The best time to do this is in the interim when he has disposed of his layers and is making ready to house his pullets.

After the laying house has been thoroughly cleaned the roosts and roost supports should be painted with Carbolineum. The dropping boards should be sprayed with a standard commercial louse destroyer. The walls, ceiling, and floor should be sprayed with Carbola.

During the ensuing year all that need be done is to keep the litter and floor in proper condition.

CARE OF MASH HOPPERS—Many poultrymen are careless about the feeding of mash to their layers. It is not enough to keep the hoppers well filled at all times. They should be well filled with **clean fresh** mash. It is a dangerous practice to constantly place fresh mash on top of the old. Every time that mash is placed in the hopper the old should be removed and placed on top, or scraped to one end. This operation requires but very little time, but is of great importance.

REASONABLE EXPECTATIONS—It goes without saying that in order to get a continuously satisfactory egg yield from the laying flock changes must be made in the diet in order to meet the variations in weather and overcome the tendency to lag in production at certain periods. The flock yield should be such for the year that a reasonable profit is realized and the flock mortality kept at the minimum. Don’t look for too big production, but follow a line of feeding that does not lower the vitality of the flock, and when a reasonably profitable laying year is completed you will still have a flock of birds to sell.

NESTS—A nest should be provided for every five hens. In case trap nests are used there should be one for every three hens. It is good business to supply an ample number of nests. The breakage avoided will soon take care of the investment. Landing boards should be provided and the nests so located as to be easily accessible. It should be borne in mind that Reds and Rocks do not fly as easily as Leghorns and that thumps do them no good.

INTRODUCTION OF NEW BLOOD—The poultryman should exercise extreme care when introducing new blood into his flock. Do not be influenced by glowing “ads” or by records at egg-laying contests. Many a poultryman who was getting on well has received a disastrous setback from disease brought to him by the new blood which he introduced into his flock, hoping to receive improvement thereby. The best way to introduce new blood into one’s flock is by buying hatching eggs. In that case he starts right. He knows the size of the egg from which his new stock is hatched. He watches the pullets and cockerels develop. He knows how they feather and their rate of maturity. If the pullets start to lay early enough, if their egg size is satisfactory, he should use the cockerels in his breeding pens. In other words the pullets will tell the truth about the cockerels. If the pullets do not fulfill his expectations he should not put them or the cockerels in his breeding pen, no matter how much was paid for them. There is nothing to be gained by the introduction of new blood in one’s flock unless that stock is as good or better than one’s own birds.

AVOIDING WINTER MOLT—In order to intelligently apply a remedy the causes of the trouble must be known. There are two major causes of winter molting of layers—improper housing conditions and loss of body weight. The poultryman who houses his layers comfortably during the winter months, and this means that the house is dry, and warm enough so that there are no frozen combs or wattles, has done something important toward avoiding a winter molt.

The body weight of the layers must be kept up. In order to accomplish this end hard grains must be fed liberally—so liberally that **every** bird goes on the roost at night with a full crop. During severe cold weather one-half of the amount of hard grain fed at night should be fed in the morning. Of course, at all times the hoppers should contain mash.

Water, necessarily, enters very largely into the discussion of how to avoid winter molting since 65.5% of a whole egg, and an equal percentage of a hen's body, is composed of water. In order to promote a maximum intake the water should at all times be of such a temperature that the hen can drink it in large quantities without being required to raise it to her body temperature. Above all things else do not neglect the water supply. Provide receptacles of good size and see to it that they are kept well filled with water from which the chill has been removed. You cannot afford to neglect 65% of your business.

Keeping the layers "under lights" twelve to fourteen hours daily increases the food and water consumption, thus lessening the possibility of a winter molt.

BROODINESS—It has been conclusively proven that broodiness is an inherited characteristic. Such being the case, there is a way out of the difficulty for the breeder who will make the comparatively small effort necessary.

Beginning with the pullet year. As soon as broodiness appears it should have prompt attention. Coops should be provided of the type illustrated below. The floors of these coops are one inch mesh wire supported by two pieces of 1" by 2" on edge. A board floor eight inches below catches the droppings. The ends are of laths placed far enough apart to allow the birds to eat and drink readily from the receptacles on the outside shelf. Birds are not especially comfortable in these coops and soon get the broody notion out of their heads.

The nests should be looked over for broodies **every** night as long as the season is on. As soon as a bird is "broken up" she should be banded (one color only being used for this purpose). When a bird becomes broody a second time another leg band is added, and so on. When the time comes to dispose of some birds the owner will know just which one deserves the axe on the grounds of broodiness.

When selecting the birds to keep over it is easy to forgive those that carry only one leg band and some of those that carry two. Those that carry none should be placed in a pen by themselves. Their sons scattered through the flock will have a big influence on the reduction of broodiness.



Type of "broody coops" in use at THE GRANDIN DEMONSTRATION FARM.

LITTER—What to use for litter in the laying house is often a vexing problem for the poultryman. No one kind of litter seems to give as satisfactory results as the combination of straw and shavings. One inch of shavings on the floor and a liberal amount of straw on top will make a litter that is absorbent and keep the droppings from the floor. The straw will last much longer in combination with shavings because it does not come in direct contact with the floor when the hens are digging it over in search of hard grains.

YARDS FOR LAYERS—Disease, vices and low vitality have resulted from the confinement of adult birds during the warm months. If the poultryman himself were compelled to live within doors continuously without exercise in the open air and sunshine, it goes without saying what would happen to his health. For that reason we have never adopted the idea of the double deck laying house. It must always be borne in mind that only good birds pay a profit, that profitable birds are healthy and that flock health can only be maintained by providing hens good clean living quarters and exercise in the open. It is better to have one story of good birds than two stories of indifferent ones.



A happy combination of tools for the removal of wire staples.

CARE OF EGGS—There always has been, and it is reasonable to suppose that there always will be, poultrymen who are careless about the handling of their eggs. Yet these same poultrymen growl because they do not get as much for their eggs or find as ready a market for them as the poultrymen who properly handle their eggs and put a first-class article on the market.

In order to get the highest market price for eggs, the suggestions listed below will be found of value.

1. Unwashed eggs keep better and look better than those that have been washed. Clean litter, clean dropping boards, and clean nesting material help to bring about this desired end. Wash as few eggs as possible.
2. Infertile eggs retain their freshness much longer than fertile eggs. As soon as the breeding season is over the males should be removed from the pens immediately.
3. Eggs should always be collected at least twice daily. During extremely hot or cold weather they should be collected not less than three times daily.
4. The temperature of the room in which the eggs are kept should be even and cool. Practically every poultryman has a cellar and he should use it for storing his eggs.
5. Eggs should be allowed to cool before they are packed in cases. Baskets are better than galvanized iron pails for collecting eggs, due to the fact that they are porous and the eggs will sooner lose their animal heat in them.
6. Every person who produces eggs for market should for his own protection, as well as that of his customers, invest in an egg grading scale.

7. If one has a select retail trade it is advisable to purchase a candling light in order to detect blood spots, cracks, etc.
 8. A neat attractive package always helps to sell merchandise. For that reason the poultryman should always have clean new flats and fillers in his egg cases when eggs are to be shipped.
 9. The careful poultryman will clean up on his stock of eggs every four or five days during warm weather, and once each week during the cool months.
- Egg size, shape, and shell color are matters of breeding. Yolk color, flavor, and shell texture are matters of feeding. The poultryman who has good breeding stock, handles his eggs properly, and follows "THE GRANDIN WAY" of feeding and management, will get top prices for his eggs.

DON'T WEAR OUT BIRDS BY FORCING PRODUCTION. THERE IS ONLY A CERTAIN AMOUNT OF LIGHT IN A CANDLE.



THE BEST COMPLIMENT THAT CAN BE PAID ANY POULTRYMAN WHOSE SOLE SOURCE OF INCOME IS FROM POULTRY IS TO SAY THAT "HE PAYS HIS BILLS."

HOT WEATHER HINTS—During the summer, thousands of layers, especially pullets that are taken into the laying house too early, die from heat prostration. This tremendous loss can be avoided.

Layers do their best when comfortable. For that reason, it is good business to see that they are kept happy during the summer months. Insulated houses are cooler in summer and warmer in winter. **Insulation is a good investment.** All openings should be used, especially those under the eaves as provided in the **GRANDIN LAYING HOUSE**. The water receptacles should be refilled three times daily.

On the days when it is excessively hot, the amount of hard grains usually fed should be cut down one-half at least. The hard grains may be omitted entirely in the case of Leghorns.

Cull frequently during the summer months. This is the time when the "quitters" show up.

The last week in August is a good time to select the females which one wishes to carry over as breeders in case he doesn't trap nest. Those that have pale shanks and beaks, in full production and full of "pep" are the ones to keep.

Keep the grain room clean and cool.

EGGS FOR HATCHING

We do not feel qualified to settle the old question as to which came first, the hen or the egg, but we do know that the shape, size and shell texture of an egg as well as the manner in which it is handled from the time that it is laid until it is placed in the incubator has much to do with the sort of chick that comes out of it.

At least a month before he begins to save hatching eggs, the poultryman should have completed his final culling and decided from just what pullets, or hens, he is going to get his hatching eggs. His breeders (both male and female) should be in first class physical condition if the desired fertility and hatchability is to be obtained. **They should be the cream of his flock.** The breeding pens should be clean, warm, dry, and well ventilated.

In the case of the larger breeds, eight males should be provided per one hundred females. In the case of Leghorns, six cockerels will suffice. In each case a leeway is thus provided to take care of mortality. Due to the pugnacity of competent breeding cockerels, subtractions can be made, but no additions. It is a good plan to have a sufficient number of males (running together) in reserve to mate at least one pen of layers.

Hatching eggs should never be washed. Washing removes the protective coat and causes too rapid evaporation during incubation, therefore, the poultryman should supply his breeders with plenty of clean nests.

Shape, size and color of eggs are all inheritable factors. For that reason only such eggs as are of the right size, shape, and color should be placed in the incubator. The consuming public buys eggs largely upon appearance. When it calls for brown eggs it wants them to be brown. When it calls for white eggs it wants them to be chalk white. The poultryman can by persistent selection of his hatching eggs give the consuming public what it wants and is willing to pay for.

The public wants eggs weighing twenty-four ounces or more to the dozen. Consequently he should put only those eggs in his incubator that weigh from twenty-four to twenty-six ounces per dozen. If he is to produce eggs of the right shape, shell texture and color those are the kind he should incubate. One does not plant horse chestnuts with the expectation of raising beans.

Eggs that otherwise would be good hatching eggs are sometimes spoiled in the handling. Hatching eggs should be collected not less than four times during the day and picked over at each collection. Those selected should be placed in a case and immediately covered with a flat. The case should be tilted by a brick or a short piece of 2" x 4" joist. The position of the brick or joist should be changed in the morning and at night, passing around the case. By thus changing the position of the eggs much is added to their hatchability.

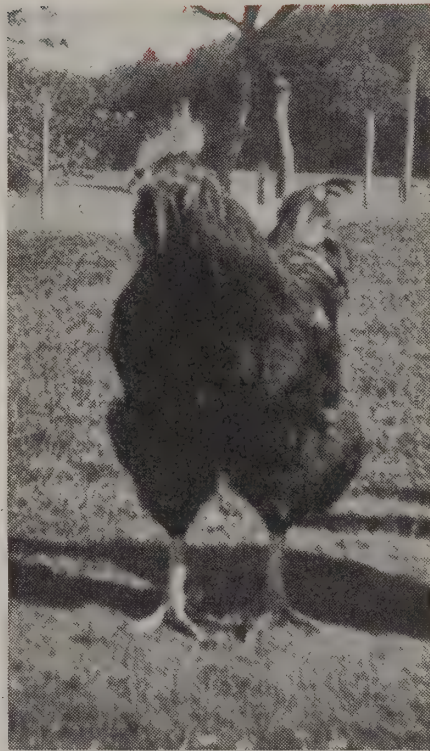
The room temperature where hatching eggs are stored should not run higher than 55 degrees nor lower than 45 degrees. A cellar is the best place to store hatching eggs on account of the humidity. Eggs intended for hatching should not be stored more than ten days, because after that time the hatchability decreases rapidly.

It is good business to candle hatching eggs. In this way, checks, cracks, porous shells, and loose air cells can be detected. The market value of eggs thus saved will more than pay for the time that it takes to do the candling.

The poultryman who is determined to get the highest percentage possible in hatchability and strong chicks should follow the foregoing suggestions and feed his breeders GRANDIN'S BREEDER MASH. See page 30.

DON'T EXPECT BIG CHICKS FROM SMALL EGGS.

COCKERELS



The husky cockerel pictured above is a **REAL** breeder. He was raised at
THE GRANDIN DEMONSTRATION FARM.

When the cockerels have reached the broiler age select the most likely ones—those that show normal early maturity, have good shape and vigor and are well feathered. They should be placed on the range well away from the pullets and receive the same attention and care.

The **GRANDIN RANGE SHELTER** will accommodate about 60 cockerels.

When the cockerels have reached the soft roaster stage those that have not developed as they should may be put on the market. So many will fail to live up to the poultryman's expectations that it is advisable to place on the range three times as many cockerels as he will need for his breeding pens.

Cockerels selected from the earliest hatches are more valuable as breeders.

From the point of view of breeding value cockerels are considerably more than half the flock. It pays to put a lot of time and effort into selecting them. **Really good ones are scarce.**

WHEN TO HOUSE BREEDING COCKERELS—The cockerels that are intended for breeding purposes should stay on the range as long as possible. It may even become necessary to cover the sides and rear ends of their shelters before taking them into the house. Rugged males are needed. This is one way to get the much-to-be-desired sturdiness and vigor.

A COMMON MISTAKE THAT POULTRYMEN MAKE IS TO SELL THE LARGEST AND BEST FEATHERED COCKERELS FOR BROILERS AND SAVE THEIR BREEDERS FROM COCKERELS THAT MATURE LATER. THIS IS A CASE WHERE "THE BEST IS NONE TOO GOOD."



Males that are fit to be in breeding pens are pugnacious. That's why we use specs at THE GRANDIN DEMONSTRATION FARM. The specs are removed when the cockerels are mated.

FINISHING BROILERS and ROASTING CHICKENS

It seldom happens that the poultryman experiences difficulty in getting broilers and roasting chickens to grow sufficiently large frames, but he frequently encounters real difficulty in getting a satisfactory amount of meat on those frames in order to get the top market price for his product.

Broilers and roasters in crowded quarters do not put on flesh as readily as those that are provided with the proper amount of space in their houses and a reasonably sized outdoor run. In order to put on flesh the chicks should have ample roosting space in well-ventilated quarters. The



outdoor run should not be too large nor too small, but should be of sufficient area to provide for exercise without crowding. Birds that are comfortable and happy will always give the largest returns for the amount of money that is expended in their behalf.

Additional information on this subject will be found on page 31.



LET'S TALK ABOUT **FEEDING CHICKS**

FIRST WEEK

When chicks are taken from the boxes and placed in the enclosure surrounding the brooder stove, they should find fountains well filled with "tempered" water and hoppers full of GRANDIN'S CHICK STARTING MASH.

The enclosure around the brooder stove should be removed at the end of the second or third day. At this time a separate hopper filled with chick-size grit should be provided. We recommend the use of granite grit because it is insoluble in acids and so does not break down the carefully prepared balance of GRANDIN'S POULTRY FEEDS.

Do not place any grit on top of the mash.

SECOND WEEK

We are strongly of the opinion that the early feeding of hard grains enables the chick to build up a strong gizzard and a sturdy digestive tract. Both will be much needed later in life if the ability to ward off disease and consume the amount of feed necessary for profitable production is to be attained.

In addition to GRANDIN'S CHICK STARTING MASH, a small amount of GRANDIN'S BABY CHICK GRAINS should be sprinkled on top three times daily.

Green Food should be provided at the beginning of the second week. This can be furnished in no better, or more economical way, than by filling a separate hopper with GRANDIN'S GREEN FEED. Chicks are naturally roughage eaters. In order for them to make the best use of concentrates, it is essential to provide them with roughage.

There is little danger of toe picking, or feather pulling, in the flocks of chicks that have access to a hopper of GRANDIN'S GREEN FEED.

THIRD and FOURTH WEEKS

Continue to feed GRANDIN'S CHICK STARTING MASH.

Increase the amount of hard grain fed.

At the beginning of the fourth week, change to GRANDIN'S INTERMEDIATE CHICK GRAINS. Give the chicks all that they will clean up at night. This may be fed on top of the mash. During the day it is a good plan to give them about one quart per hundred.

Provide low roosts.

Keep a hopper of GRANDIN'S GREEN FEED before the chicks at all times.

It seems impossible to get away from the fact that we must have three sizes of feed hoppers. At the end of the third or fourth week the baby chick hoppers should be cleaned and stored. Hoppers of intermediate size should replace them. **Provide plenty of feeding space.**

At the beginning of the third week, or sooner, whenever possible, the chicks should be allowed to go out of doors.

FIFTH and SIXTH WEEKS

Continue to feed GRANDIN'S CHICK STARTING MASH.

Keep a hopper full of GRANDIN'S GREEN FEED before the chicks at all times until they go on range.

Larger water founts should now be provided.

Screen corners with hardware cloth.

Keep brooder house warm at night. This prevents huddling and huddling is dangerous.

Use intermediate chick size grit.

The poultryman who is using GRANDIN'S CHICK STARTING MASH should begin a gradual change, to GRANDIN'S GROWING MASH at the end of six weeks.

GRANDIN'S INTERMEDIATE CHICK GRAINS should be fed in increasing quantities.

SEVENTH to TENTH WEEK

At the beginning of the ninth week GRANDIN'S SCRATCH GRAINS should replace GRANDIN'S INTERMEDIATE CHICK GRAINS. At the same time, hen-size grit should replace the intermediate chick size.

The cockerels should be removed at the end of the seventh or eighth week.

At the end of the tenth week the amount of hard grains fed should nearly equal the amount of mash consumed.

Separate the pullets from the cockerels. Both will do better.

TENTH to TWELFTH WEEK

GRANDIN'S GROWING MASH should be kept before the chicks at all times.

Continue to increase the amount of hard grains fed until the amount consumed equals that of the mash.

We do not favor the cafeteria system of feeding hard grains.

TWELFTH WEEK to MATURITY

Follow directions to be found under the title "LET'S TALK ABOUT THE RANGE."



Doesn't it seem to you that these pullets are thrifty and happy?
Well, they are. They were raised THE GRANDIN WAY.

SQUARE TALK

The poultryman who has read this booklet as far as this page will rightly have come to the conclusion that it was not written by a scientist, but by a practical worker with poultry. The author, we are pleased to say is one of our employees.

It is very evident to the reader that he has taken into consideration the unbreakable laws laid down by Nature. We subscribe wholeheartedly to the methods of poultry management which he advocates. We believe that they have the solid basis of common sense. **We know** how splendidly they work out in practice. That is why we are proud to call this program **THE GRANDIN WAY**.

In the pages that follow the subject of feeds will be taken up. Now don't throw the book down! During the past year, poultrymen have been forced to realize what feed costs really mean in relation to their profits.

We readily admit that there are two prime factors in a poultryman's program which come ahead of feeds; these, in order of importance, are stock and management. As to feeds, we will tell you frankly and truthfully that during the past year, we have taken our "licking" along with poultrymen. At no time have **GRANDIN'S FEEDS** been cheapened in order to make a profit. **GRANDIN** quality has been maintained though our profits have been nil. **We have stood by poultrymen. We have played fair.**

FOR YOUR OWN GOOD AS WELL AS OURS, WE ASK YOU TO READ THE PAGES THAT FOLLOW.

D. H. GRANDIN MILLING COMPANY
JAMESTOWN, NEW YORK

A NEW, RATIONAL, PRACTICAL and ECONOMICAL MASH

GRANDIN'S START-TO-FINISH MASH

GUARANTEED ANALYSIS

Protein	16%
Fat	4%
Fiber	7%
Carbohydrates ..	50%



COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Alfalfa Leaf Meal, Hominy Feed, Yellow Corn Meal, Pulverized Heavy Oats, Ground Barley, Wheat Bran, Wheat Middlings, Calcium Carbonate, Salt, and Potassium Iodide.

GRANDIN'S START-TO-FINISH MASH is a Starting Mash, a Growing Mash, and a Laying Mash. No changes in mash feeding need be made from the time that chicks are placed under the brooder stove until the **right** time has come to dispose of them.

Lack of space prevents us from telling poultrymen about all of the advantages to be found in the one-mash system of feeding, while it is admittedly a slower program, it is **sure**. The problem of when and how to change mashes is done away with. You may rest assured that pullets of right formation and feathering can be grown within the logical time limit on **GRANDIN'S START-TO-FINISH MASH**. In the laying house their production will be commensurate with their breeding and management.

Don't hesitate to start your chicks on **GRANDIN'S START-TO-FINISH MASH**. Carry them through their growing and productive periods. If you follow **THE GRANDIN WAY**, the results will satisfy you in dollars and cents.

The poultryman who buys day-old chicks cannot "go wrong" if he starts them on **GRANDIN'S START-TO-FINISH MASH** and follows **THE GRANDIN WAY** of feeding and management.

We wish to make it clear to poultrymen that **GRANDIN'S START-TO-FINISH MASH** is not a "**complete ration**." Hard grains should be fed in connection with it in the brooder house, on the range, and in the laying house, as we advise for the **GRANDIN THREE-MASH SYSTEM OF FEEDING**. See page 24.



GRANDIN'S CHICK STARTING MASH

GUARANTEED ANALYSIS

Protein	16%
Fat	4%
Fiber	6%
Carbohydrates	50%

COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Alfalfa Leaf Meal, Pure Wheat Bran, Pure Wheat Middlings, Yellow Corn Meal, Ground Wheat, Ground Hulled Oats, Hominy Feed, Ground Barley, Pulverized Heavy Oats, Calcium Carbonate, Salt and Potassium Iodide.

GRANDIN'S CHICK STARTING MASH is composed of high grade ingredients, so balanced as to enable chicks to get a **right** start in life. There are other feeds that will make chicks grow faster for a period of six weeks, but the best story can be told at the end of six months by the **GRANDIN** user. Chicks that are fed **GRANDIN'S CHICK STARTING MASH** make **normal sturdy** growth and are well feathered. Follow **THE GRANDIN WAY** of feeding and management.



GRANDIN'S GROWING MASH

GUARANTEED ANALYSIS

Protein	15%
Fat	4%
Fiber	8%
Carbohydrates	50%

COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Corn Gluten Feed, Alfalfa Meal, Yellow Corn Meal, Hominy Feed, Pulverized Heavy Oats, Ground Barley, Wheat Bran, Wheat Middlings, Calcium Carbonate, Salt and Potassium Iodide.

Above all things else to be desired in the development of a pullet is a strong, rugged frame. That's just one of the things that is very noticeable about the chicks grown on GRANDIN'S GROWING MASH.

GRANDIN'S GROWING MASH is not a forcing mash. It does not bring the pullets to productive maturity too soon. It develops their bodies naturally and insures them the size and vitality essential for continued production. Follow THE GRANDIN WAY of feeding and management.



THERE IS A CLOSE ASSOCIATION BETWEEN BODY SIZE AND EGG SIZE. PULLETS GROWN "THE GRANDIN WAY" ARE BIGGER AND LAY THE KIND OF EGGS THAT BRING MORE MONEY.



GRANDIN'S LAYING MASH

GUARANTEED ANALYSIS

Protein	20%
Fat	4%
Fiber	8%
Carbohydrates	50%

COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Corn Gluten Meal, Corn Gluten Feed, Yellow Corn Meal, Hominy Feed, Alfalfa Meal, Pulverized Oats, Ground Barley, Wheat Bran, Wheat Middlings, Calcium Carbonate, Salt and Potassium Iodide.

GRANDIN'S LAYING MASH is the last link in the chain of the GRANDIN THREE-MASH SYSTEM OF FEEDING. Like the other links, it is strong. The whole chain will stand the severest tests.

In GRANDIN'S LAYING MASH we manufacture a feed which fulfills the needs of layers. It does not force production. It enables them to lay steadily. During the year they will lay every egg that their breeding and care will warrant. Feed and manage your layers a year THE GRANDIN WAY. At the end, you will have satisfied yourself that you are using a mash that stands the test of time.

GRANDIN'S GREEN FEED

INGREDIENTS

Fine Quality Shredded Alfalfa,
Dried Beet Pulp,
Cane Molasses

Recent investigational work has brought to the front the importance of Vitamin A in solving the problem of flock mortality. It has been found that Vitamin A is essential to the growth of chicks, that large quantities are needed for vigorous growth, and that still larger quantities are required for egg production.

Alfalfa is the most economical source of Vitamin A.

GRANDIN'S GREEN FEED supplies at a very low cost the bulk which is necessary to enable chicks and layers to make the best use of the concentrates furnished them in the form of mashes.

Poultrymen who have suffered losses by feather pulling and cannibalism should follow THE GRANDIN WAY of feeding and management.

GRANDIN'S BREEDER MASH

GUARANTEED ANALYSIS

Protein	20%
Fat	4½%
Fiber	8%
Carbohydrates	55%

INGREDIENTS

Concentrated Cod-liver Oil, Dried Buttermilk, Dried Whey (Milk Sugar Feed), Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Corn Gluten Meal, Dehydrated Alfalfa Leaf Meal, Ground Yellow Corn, Hominy Feed, Pulverized Heavy Oats, Ground Barley, Wheat Bran, Wheat Middlings, Calcium Carbonate, Salt and Potassium Iodide.



The value of those eggs that are placed in incubators yearly and fail to hatch constitutes a vast economic waste. In order to overcome this handicap, the poultry industry has called for, and has received, the help of the scientist. The need was apparent for a mash that not only would enable breeders to lay heavily, but at the same time, produce eggs of higher fertility and hatchability. In order to accomplish this end, it was recognized that this mash must contain more of certain materials than one compounded for production alone, in order to supply the vitamin requirements essential to reproduction.

GRANDIN'S BREEDER MASH is a recent addition to the GRANDIN line of poultry feeds. **It wasn't placed there until we knew that no better breeder mash could be made.** We are passing on to consumers the results of the most recent findings of the scientist in the field of poultry nutrition, together with the results of our own tests.

The breeder who aspires to get the best possible cash returns from his breeders should use **GRANDIN'S BREEDER MASH**.

GRANDIN'S BROILER MASH

GUARANTEED ANALYSIS

Protein	20%
Fat	5%
Fiber	8%
Carbohydrates	57%

INGREDIENTS

Concentrated Cod-liver Oil, Dried Buttermilk, Dried Whey (Milk Sugar Feed), Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Corn Gluten Meal, Dehydrated Alfalfa Leaf Meal, Wheat Bran, Wheat Middlings, Ground Wheat, Ground Hulled Oats, Yellow Corn Meal, Hominy Feed, Ground Barley, Pulverized Heavy Oats, Calcium Carbonate, Salt and Potassium Iodide.

In GRANDIN'S BROILER MASH we are offering to poultrymen a **new** and distinctly one-purpose mash. The nature and balance of the ingredients work together to a **single** and **definite** end — the production of broilers.

GRANDIN'S BROILER MASH produces solid, plump broilers with heavy feathering and bright pigmentation. In short, it produces the kind of broilers demanded by the discriminating consumer. Our experiments have proven that the protein, fat, fiber and carbohydrate contents are **just right** for the production of **fancy** broilers.

As a supplemental feed to aid layers in maintaining their body weight when in high production, or during the molting period, GRANDIN'S BROILER MASH fed as a wet mash at noon produces results even better than those expected by experienced poultrymen.

FEEDING DIRECTIONS (BROILERS)

We advise starting the chicks on GRANDIN'S START-TO-FINISH MASH and feeding it for a period of six weeks, even though it is the poultryman's intention to market all of them as broilers. Hard grains should be fed as we advise on page 24 under the heading LET'S TALK ABOUT FEEDING CHICKS.

At the end of six weeks, or as soon thereafter as they can be detected, the pullets should be removed in case they are to be kept for production.

The cockerels should be changed to GRANDIN'S BROILER MASH. From this time on they should be fed cracked yellow corn night and morning in such amounts as they will clean up within a period of one-half hour.

Don't crowd. Keep their houses clean. This program produces **top-notch** broilers.

FEEDING DIRECTIONS (ROASTING CHICKENS)

In case the poultryman desires to raise **fancy** roasting chickens, the cockerels should be fed GRANDIN'S START-TO-FINISH MASH until they are twelve weeks old. They should be fed hard grains as directed under the heading LET'S TALK ABOUT FEEDING CHICKS to be found on page 24 of this booklet. From that time on they should be fed cracked yellow corn night and morning in such amounts as they will clean up within a period of one-half hour.

GRANDIN'S BABY CHICK GRAINS

GRANDIN'S BABY CHICK GRAINS are composed of high grade finely cracked wheat, yellow corn and a liberal amount of steel cut oat groats. They are clean and free from dust. They should be used in connection with GRANDIN'S START-TO-FINISH MASH or GRANDIN'S CHICK STARTING MASH as directed on page 24 of this booklet.

GRANDIN'S INTERMEDIATE CHICK GRAINS

GRANDIN'S INTERMEDIATE CHICK GRAINS are composed of only three ingredients — cracked yellow corn, high grade wheat and oat groats. Compare them with others for grade and cleanliness. Notice the amount of oat groats.

GRANDIN'S SCRATCH GRAINS

GRANDIN'S SCRATCH GRAINS—When the pullets are housed for the winter, the variety in diet which they were able to obtain on the range, can no longer be had. As nearly as it is possible for him to do so, the poultryman should supply that need. He will find that GRANDIN'S SCRATCH GRAINS, owing to the **variety** and **high quality** of the grains of which it is composed, will go a long way toward **economically** supplying the balance in rations needed to keep his birds in good flesh, good health and continued production.

In order to comply with the demand of many commercial poultrymen, we formulated another grain mixture which we call GRANDIN'S SPECIAL SCRATCH GRAINS. Poultrymen who believe that heavy oats fill an important place in a well balanced hard grain mixture will be well pleased with this combination. It is a well balanced mixture of clean, high grade grains which is always sold at a reasonable price.

GRANDIN'S DAIRY AND STOCK FEEDS are in the same class with GRANDIN'S POULTRY FEEDS — THE FIRST CLASS.



LET'S TALK ABOUT TURKEYS



Poults on the wire platform at THE GRANDIN DEMONSTRATION FARM.

The number of turkeys raised "for the fun of it" is exceedingly small. The vast majority of turkey raisers need every bit of the labor income that it is possible to derive from their flocks. **This fact we have taken into consideration.** That is why the methods of turkey feeding and management which we advocate are in line with our own experience and observations, and good business practice.

Lack of space compels us to give to readers the information which follows in very concise form. However, the reader who would like more detailed information on any particular phase of turkey feeding or management, should write us. We would be pleased to comply with your request. Address your communications to POULTRY SERVICE DEPARTMENT, D. H. GRANDIN MILLING CO., JAMESTOWN, NEW YORK.

BROODING EQUIPMENT—Since the vast majority of turkeys are brooded later in the season than chicks, it is not necessary to construct an expensive brooder house. A brooder house 12 x 14 feet will accommodate 125 poults. A brooder house that has been used for chicks may be used for poults after it has been **thoroughly cleaned.**

The wire platform should be at least as large as the house. Three-fourths inch wire cloth should be used for the floor, which should be well supported. In order to prevent sagging of the wire cloth, it will be found advantageous to buy wire cloth two feet wide and place the cross supports two feet apart, thus making the squares two feet.

The wire platform should be provided with shelves on the outside to support the feed hoppers which should be covered by a long roof on the outside and short one on the inside of the pen. In this way the feed will not become wet, regardless of the direction from which the rain may come.

Three-eighths inch dowels, one foot in length are much better than lathes for covering the opening to the feed hoppers. The dowels, two inches apart, are set ladder style, into one by two inch pine strips. A grille is thus made which is readily removable in case one feels that smaller openings are needed. As a rule, however, poults should be fed and watered on the platform until they are too large to go through a two-inch opening.

BROODING SUGGESTIONS—In general, the turkey raiser in the care of his poults may safely follow the directions given elsewhere in this booklet for the care of chicks. The same feeders and waterers may be used until the poults are old enough to eat and drink from the receptacles on the shelf outside of the wire platform.

The poults should be confined to the brooder stove for two days by a low enclosure (18 inches high) placed two feet from the edge of the hover. The floor space within this enclosure should be covered with opened burlap bags tacked to the floor.

While the poults are within this enclosure, GRANDIN'S TURKEY STARTER and chick size grit should be before them at all times on egg case flats. Water from which the chill has been removed should be before them constantly in three-two gallon chick water fountains.

As soon as the enclosure has been removed, take up the burlap and burn it. Cover this space with a light sprinkling of sharp sand. The mash should now be placed in grille top baby chick feed hoppers. If the poults grow as they should, intermediate size feed hoppers will soon be needed. Watch them closely. **They should eat in comfort.**

Weather permitting, the poults should be allowed to go out on the wire platform when they are ten days old. After their fifth day on the platform, the feed hoppers and water fountains should be moved out at the rate of one daily until all are on the platform.

Don't overheat the poults. Poults that are overheated make slow growth and are poorly feathered.

LITTER—Clean, sharp sand makes the best and cheapest litter. Only a small amount need be used. The brooder house should be cleaned daily until the poults go on the range.

ROOSTS—Roosts of the step-ladder type should be provided before the poults are placed in the brooder house. They should be hinged to the wall so that they may be readily elevated when cleaning.



A flock of Bourbon Reds on range at THE GRANDIN DEMONSTRATION FARM.

NIGHT LIGHTING—A small (5-Watt) bulb or dimmed lantern suspended over the brooder stove causes the poults to spread out better when bedded down for the night. The light should be kept going as long as the poults are in the brooder house. Turkeys are often frightened by night noises and will go into a huddle which causes losses, unless they are provided with a light.

GREEN FOOD—Turkeys are voracious eaters of green food. Their wants should be supplied. Chopped soft clover, cabbage, lettuce, Swiss Chard and rape are good succulent green foods. From the time that the poults are one week old, green food should be provided in carefully increased quantities. The feeder must see to it that the green food which he provides is not too fibrous. Impaction of the crop may result.

WHEN SUCCULENT GREEN FOOD CANNOT BE PROVIDED, GRANDIN'S GREEN FEED WILL PROVE TO BE AN EXCELLENT SUBSTITUTE.

WHEN TO CHANGE MASHES—When the poults are ten weeks old, change gradually from GRANDIN'S TURKEY STARTER to GRANDIN'S TURKEY GROWER.

GRIT—Grit is more essential to turkeys than to chicks. They must be amply supplied with hard granite grit. When the poults are two weeks old, change from baby chick size to intermediate chick size grit. When they are four weeks old, change to hen size grit. If procurable, turkey size grit should be provided when they go on the range.

HARD GRAINS—When the poults are ten days old, GRANDIN'S BABY CHICK GRAINS may be sprinkled on top of the Starter, in such amount as the poults will clean up in 15 or 20 minutes. When the poults are three weeks old, change to GRANDIN'S INTERMEDIATE CHICK GRAINS. When they are ten weeks old, they should be given all that they will eat at night. As soon as they go on the range, change to GRANDIN'S SCRATCH GRAINS.

SANITATION—A rigid program of sanitation should be carried out in growing turkeys. Water fountains and pans should be scrubbed daily. Their feed should be clean and fresh. The brooder houses should be kept **clean**. The spots on the range where the turkeys congregate most frequently should be raked weekly with a fine-toothed lawn rake.

ON THE RANGE—Turkeys should be put on a clean, well grassed range which has been mowed, when they are ten weeks old (100 to an acre). Grille top feeders (hen size) should be provided for each 100 birds. Four of them should be filled with GRANDIN'S TURKEY GROWER and one with GRANDIN'S SCRATCH GRAINS. When the turkeys are fourteen weeks old, one of the mash hoppers should be emptied and filled with heavy oats. Two weeks later, another mash hopper should be emptied and filled with heavy oats. Four weeks before the turkeys are marketed, whole corn should replace GRANDIN'S SCRATCH GRAINS.

The GRANDIN WAY
is the CHEAPEST and BEST way
to raise the plump, sweet flavored turkeys
that bring
THE TOP MARKET PRICE.

BREEDING STOCK

The turkey raiser who does his own breeding should, when his birds are well along in maturity, look them over carefully and select his prospective breeders before he does any selling. **Selective breeding pays.**

Breeders should be allowed to range in the open as much as possible during the winter months, but they should be comfortably housed at night. Exercise in the open is conducive to their vigor as well as that of their offspring.

GRANDIN'S TURKEY GROWER will supply every nutritional requirement of turkeys kept for breeding, as far as a mash is concerned. **GRANDIN'S SCRATCH GRAINS, GRANDIN'S GREEN FEED,** oyster shells and grit are the only supplements needed.

The number, fertility, and hatchability of eggs produced by breeders that are fed and managed **THE GRANDIN WAY** will meet the expectations of the turkey raiser who really knows his business.



GRANDIN'S TURKEY STARTER

GUARANTEED ANALYSIS

Protein	24%
Fat	4%
Fiber	7%
Carbohydrates	50%

COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Corn Gluten Meal, Soybean Oil Meal, Alfalfa Leaf Meal, Ground Hulled Oats, Hominy Feed, Yellow Corn Meal, Ground Wheat, Pulverized Oats, Ground Barley, Wheat Bran, Wheat Middlings, Calcium Carbonate, Salt and Potassium Iodide.

In **GRANDIN'S TURKEY STARTER** we are offering turkey raisers the best that we know how to manufacture. It is **clean** and **uniform**. It will satisfy the most up-to-date feeder. It has been tried side by side with several brands and the advantages has been in its favor.

GRANDIN'S TURKEY STARTER satisfies the poults. You will not hear them "yip" as they do when their feed does not fully satisfy them. You will be pleased with their smoothness and close feathering.

GRANDIN'S TURKEY GROWER

GUARANTEED ANALYSIS

Protein	20%
Fat	4%
Fiber	8%
Carbohydrates	50%

COMPOSED OF

Concentrated Cod-liver Oil, Dried Buttermilk, Ground Meat and Bone, Fish Meal, Soybean Oil Meal, Alfalfa Meal, Corn Gluten Meal, Yellow Corn Meal, Hominy Feed, Pulverized Oats, Ground Barley, Wheat Bran and Wheat Middlings, Calcium Carbonate, Salt and Potassium Iodide.

In **GRANDIN'S TURKEY GROWER**, we have developed a mash which will satisfy the most exacting turkey raiser. No growing mash will do more to aid him in the production of first quality turkeys for market. No mash will carry the breeders through the winter in better condition. Don't hesitate to try it. Regardless of the cost of any ingredient it never varies.

LET'S TALK ABOUT

POULTRY DISEASES

The more or less artificial methods of modern poultry production have brought in their train many diseases heretofore unknown. The financial losses caused thereby are appalling. While it is valuable to have at hand information relative to the treatment of the various poultry diseases, it is infinitely more important to know and follow those methods of poultry breeding and management which makes vaccines and remedies unnecessary. For that reason, we present to poultrymen a system of management in this booklet which we have tested and know can be followed with profit. We call it **THE GRANDIN WAY**.

The laws of Nature are inexorable. **When we disobey, the penalty must be paid.** Poultrymen today are paying a heavy penalty for crowding too many chickens into one house, or on one acre of land. Breeders are spending too large a proportion of their lives under cover. Exercise in the open and sunlight mean as much to them as to humans. **Our hope of salvation lies in rearing fewer and better birds.**

A certain number of poultry diseases such as pollorum, intestinal parasites, fowl pox, colds, roup, and infectious bronchitis, by the faithful work of the scientist, have been brought under control, however, new ones are constantly appearing upon the scene. Among these newer diseases are range paralysis, big liver disease, anemia, gray eye and blindness, and tumors. For this last group, no specific remedies are known, though the losses caused by them during the past few years have been tremendous.

After all is said and done, the final solution of the problem comes back to the matter of breeding and management. Let's have less volume in the poultry business. Let's do more selective breeding, having vigor and health as our main objective. Let's have fewer and better chicks — the kind that can resist disease. Let's make more money.

COMMON POULTRY DISEASES

LARYNGOTRACHEITIS (Commonly called Contagious Bronchitis)—The acute type of this disease is one most to be dreaded by the poultryman. It is spread mainly through contact with live birds, but may be spread through infected crates or bags. In buying mature stock for breeding purposes the poultryman should be careful to isolate them for a period of four weeks before putting them in his own flock. The same method should be followed with birds that are brought back from poultry shows and egg-laying contests. "Contagious Bronchitis" spreads very rapidly and unless dealt with quickly the death of a large part of the flock is sure to follow. One of the very bad features of this disease is that when it has once attacked a flock it is likely to appear again on that farm. For that reason the poultryman should be very careful that it does not gain a foothold on his place.

There are two treatments for this disease which seem to be reasonably effective—the vaccine treatment and the spray treatment. There are a number of these sprays on the market put up by reliable manufacturers. If the vaccine treatment is to be used the poultryman who is not sure of his ground should at once seek the aid or advice of his State Pathologist. Prompt action must be taken whatever method is to be followed in order to get results that amount to anything at all.

CHICKEN POX—Chicken pox is a disease much to be dreaded, therefore, one which the poultryman should guard against carefully. Buildings and grounds should be kept in a clean and sanitary condition. Drafts and crowding should be avoided.

Birds afflicted with chicken pox have the symptoms of colds. Along with this condition eruptions appear on the comb, wattles and face. These eruptions after a time become dry scales which cover raw sores. Production immediately ceases because the birds are downright sick.

Vaccination as a preventive measure against chicken pox has proven very satisfactory. The birds should be vaccinated between the ages of twelve and sixteen weeks. If one has never vaccinated for chicken pox he should get the advice of his county agent before making the attempt.

When a flock is suffering from an outbreak of chicken pox and the owner does not wish to vaccinate he should immediately give his birds a dose of epsom salts at the rate of one and one-half pounds to each one hundred. The birds will lose their appetites and in order to increase their food consumption a wet mash using semi-solid buttermilk should be given them at noon in such amount that it will be eaten within one-half hour. Ten pounds of dried milk should be added to the regular mash. Hard grains should be fed sparingly. Dusting the birds while on the roost with H-T-H (15) seems to have a decidedly beneficial effect. Germ X and B. K. are also effective when sprayed on the birds at night.

VENT GLEET—Vent Gleet is a venereal disease of fowl. There is swollen condition around the vent accompanied by an offensive odor. It often happens that there is a whitish covering over the skin around the vent. The bird voids frequently and the droppings are liquid and foul smelling.

Vent Gleet is a difficult disease to treat. As a rule, as soon as the poultryman discovers a bird in his flock so afflicted, he would be better off to kill her at once. She should be removed immediately from the flock when males are present for this disease is liable to be spread rapidly by the cockerel or rooster in breeding.

It sometimes happens that birds are cured of Vent Gleet by washing the affected parts with an antiseptic solution by the application of carbolated vaseline.

FAVUS—This disease appears more often among pullets in the fall. It is caused by a fungus which as it spreads over the bare parts of the head gives the afflicted bird a pale appearance. It is a contagious disease and as soon as the poultryman discovers a case he should remove the bird at once.

It frequently happens that a cure may be affected by the application of carbolated vaseline in cases where the disease has not spread to the feathers.

BROODER PNEUMONIA—This is another chick disease that has become serious and more common during the past few years. It is sometimes called aspergillosis. This disease also attacks adult stock but more particularly chicks at the age of from one day to about four weeks.

The causes are drafts, exposure, chilling, uneven temperature and dampness. The spores from a very common fungus growth found frequently in litter straw and grains is probably largely responsible for its common occurrence.

External symptoms in chicks are sleepiness, dumpishness, rapid breathing and drooping wings. The above symptoms are general and a post-mortem examination is, in most cases, necessary to determine the trouble. Upon opening the chicken and examining the lungs you will find a darkened and congested condition accompanied by small yellowish tubercles. In some cases, these tubercles are found in the liver, mesentery and intestines. On the other hand, it is sometimes difficult to locate any tubercles at all in some diseased specimens.

According to the best authorities no treatment has as yet been recommended. This disease is fatal in practically every case. This is one of the many instances when rigid measures of sanitation and careful inspection and handling of litter and food is a profitable investment of time.

COCCIDIOSIS—Coccidiosis like several other poultry diseases was practically unheard of among poultrymen a few years ago. Now it has become common and is causing a high mortality each year in the flocks of growing chicks.

It usually occurs in chicks between the ages of three and ten weeks. This is the so-called acute form. Dr. E. E. Tyzzer of the Harvard Medical College as a result of extended investigation on this subject arrives at the conclusion that there are three distinct species of Coccidia which affects chickens, acute, evinced by bloody droppings and congested caeca, intestinal and chronic.

Acute Coccidiosis often attacks a flock of birds without warning. Sometimes bloody droppings will be observed before any chicks appear sick. It more frequently happens that they will suddenly begin to look unthrifty, drooped wings, crow-headed appearance, listless and wabbly. **Immediate action** must be taken.

Chicks afflicted with Acute Coccidiosis are very sick. If your fires have gone out and the weather is cool, they should be renewed, as the afflicted chicks must be kept warm. They should be "flushed" at once. The **MILK FLUSH** is administered by adding 30 pounds of dried milk to 100 pounds of whatever mash you may be using. This should be continued for three days. The **SODA FLUSH** is administered by adding a quarter of a pound of Bicarbonate of Soda (Saleratus) to each five gallons of drinking water for one day only.

EPSOM SALTS as a flush has proven very effective. One pound of epsom salts to each 500 pounds of chickens, in the drinking water for one day is the generally accepted dose.

In every case where it is possible to get natural soured milk this should be kept before the chicks in wooden or crockery receptacles. If this cannot be obtained the use of semi-solid buttermilk is advisable.

In order to combat this dreaded disease successfully, a rigid sanitary program must be carried out for at least ten days. The floors should be thoroughly cleaned each day and sprayed with a coal tar by-product disinfectant such as Creonoid, and the litter renewed.

We do not believe in flushing as a preventative for Coccidiosis. On many farms Coccidiosis will break out anyway.

Flushing should not be overdone. Both chicks and mature birds are weakened by a continued laxative condition.

CHRONIC COCCIDIOSIS—Chronic Coccidiosis does not appear until the chicks are well along toward maturity and persists throughout the winter. Birds afflicted with this disease have a sluggish appearance, pale combs, and lose weight. The head becomes long on account of emaciation, and the color leaves the shanks. An examination of the intestinal tract reveals a highly inflamed condition.

A liberal use of sour milk or semi-solid buttermilk seems to be the most effective treatment for Chronic Coccidiosis. Badly affected birds should be removed from the flock and clean ranges and houses provided. Do not raise chicks from flocks that are badly afflicted with Chronic Coccidiosis.

RANGE PARALYSIS—Range paralysis is one of the so-called new diseases. It has come upon the scene since poultry was bred in large numbers. In spite of the untiring efforts of scientists practically nothing is known about its cause and cure. As the matter stands today losses from this disease can be avoided only by careful breeding and management. The following control measures are advocated by the Iowa Station:

1. Dispose of all affected birds as soon as noted.
2. Do not use for breeding purposes any bird that shows the least evidence of the disease.
3. Rear chicks on clean ground away from mature fowl.
4. In purchasing new breeding stock, baby chicks or eggs for hatching purposes, secure them from a flock in which the disease has never been known to occur.
5. Practice rigid hygiene and sanitation, modifying these to suit local and individual flock conditions.

CANNIBALISM AND FEATHER-PULLING IN CHICKS—A majority of poultrymen experience trouble with cannibalism and feather-pulling. The crowding of chicks in confinement is the primary cause of this trouble. It can be avoided by keeping the chicks busy by feeding cabbage, beets, etc. Be sure that the birds are not kept too warm and that plenty of feeding and drinking space is provided. The early feeding of hard grains in clean litter serves as a preventative. In case of an outbreak the room should be slightly darkened and those chicks that have been attacked painted with pine tar or a commercial anti-pick.

LICE—Beware of lice! There can be no success with poultry if they are troubled with lice. A lousy hen is a poor layer, eats much, but puts on no flesh and easily falls prey to disease.

TREATMENT—Paint the roosts with Carbolinum and spray the nests with Creonoid or some other good liquid spray. The dropping boards should be kept clean. Nicotine Sulphate or "Black Leaf 40" is a very effective treatment for lice. This is applied with a brush to the roosts about one hour before the birds go to roost. The fumes from the nicotine permeate the hen's feathers and the lice are killed. This should be done when the pullets are housed for the winter. Another application in April and another in July will serve to keep the birds free from lice. Care should be taken to see that the room is well ventilated on the night that "Black Leaf 40" is applied.

MITES—Mites in the laying house, brooder house, and range shelter are a genuine pest that must be disposed of. No one knows from whence they come but with the advent of warm weather they suddenly appear. They are small and grey in color but when filled with blood are red, hence the commonly accepted name "Red Mites." The best method of control is to paint the roosts, supports, nests, etc., with Carbolinum. There are several good red-mite sprays on the market which should be used in a compressed air sprayer in order to reach the cracks and crevices where they hide during the day.

CANNIBALISM AND FEATHER-PULLING IN MATURE FOWL—A good method to use to control this trouble is to remove the tip of the upper beak of birds that do the picking. The edge of the upper beak is cut in 1/8 to 3/16 of an inch from the tip; this depends on the size and length of the tip. By prying and pulling with the flat side of the knife the point of the beak is removed. It is better to tear it in this way than to cut it. Tipping the beak does not interfere with a bird's ability to eat.

Pine tar or some good commercial anti-pick should be applied to the birds that have been picked.

WORMS—A great deal of trouble that flock owners experience is due to worms. Intestinal, round, and tape worms are the chief offenders. There are a great many good commercial remedies on the market for worms. These include both flock and individual treatments.

Do not let the worms rob you of your poultry profits. They absorb the food nutrients in the intestinal tract, and thus weaken your birds so that they fall ready victims to various diseases.

COLDS—Colds spread rapidly. At the first sign, action should be taken. Symptoms: Sneezing, watery discharge from eyes and nostrils. Improper housing conditions, exposure to cold or dampness, crowding on roosts at night with subsequent sweating are conducive to outbreaks of colds.

Treatment: Give Epsom Salts at the rate of one pound per five hundred pounds of weight in drinking water for one day only. Dust the birds while on the roosts three nights in succession with H-T-H 15 or B.K. powder.

ROUP—The term "roup" has been applied to nearly all poultry diseases accompanied by the symptoms described as "frothy eyes and running discharge from the nostrils." All colds may have these symptoms, but every cold is not roup. Roup is always accompanied by the familiar foul smell. The odor is peculiar to the disease, and is very lasting and penetrating and when once recognized, there is very little danger of ever mistaking any other disease for roup. The general symptoms are: Discharge at mouth and nostrils, swelled head, offensive breath, difficult breathing, canker spots and exhaustion. Roup is the result of close air, extreme variations in temperature between day and night, damp houses, draughts, improper food and filthy water.

The best known remedy for this disease is dusting the birds on the roost with H-T-H (15) or B. K. powder.

BUMBLEFOOT—Bumblefoot is a swelling on the bottom of the foot caused by a bruise. These swellings are painful and should have attention. The bird that is to be operated on should be segregated in a clean coop with plenty of clean litter. A cross cut over the center of the swelling should be made and the pus and blood squeezed out. The foot should then be immersed in an antiseptic solution. After this a rag should be securely bound on the foot to exclude the dirt.

There may be other causes for bumblefoot but it seems to occur most frequently where there is little litter on the floor and the roosts and nests are too high.

PROLAPSUS OF THE OVIDUCT—Intensive breeding for production and the feeding of too stimulating rations are the primary causes of this trouble which causes the modern poultryman a lot of worry and loss. As a rule there are more cases of prolapsus in the fall when the pullets are just put in the laying house and again in the spring when the birds are beginning to feel the strain of heavy production.

In a flock which is bred and selected for production there will always be an occasional case of prolapsus. When it appears to a serious extent the amount of corn in the ration should be cut down. **GRANDIN'S SCRATCH GRAINS** are composed of hard grains in the right proportions. Treat the flock by flushing with Epsom Salts (one pound to every 100 birds in the drinking water for one day). An abundance of green feed should be provided. Semi-solid buttermilk liberally fed on the scratch grains in troughs will prove effective. A laxative diet is needed.

EPIDEMIC TREMORS OR TREMBLING-CHICK DISEASE—This is a new and little understood malady. Evidently it is a disease which affects the nervous system. The first symptom is a trembling of the head and neck. Later the chick loses control of its legs. Sometimes the mortality is as high as 65%.

Until such time as more is known about the cause of this disease no cure can be suggested. The same story holds true for this disease as for all others, breeding birds and handling them in such a manner that they will have the stamina necessary to resist disease.

BOTULISM or "LIMBER NECK"—This disease is caused by bacterial poisoning. The bacteria may be present in decayed meat and packed feed, or maggots which have been feeding on decayed animal matter.

If an entire flock is afflicted, Epsom Salts should be given in the drinking water, at the rate of one-half pound per five hundred pounds of weight. In individual cases, a tablespoonful of castor oil will often prove effective.

SOFT-SHELLED EGGS—In the case of pullets when beginning to lay and pullets or hens in high production a few soft-shelled eggs seem to be inevitable. In the majority of cases, however, soft-shelled eggs are the direct result of the lack of shell making material. A supply of oyster shells should be before the birds at all times, including the period that they are on the range.

BLOOD SPOTS IN EGGS—Blood spots are caused by the rupture of a small blood vessel in the ovary or oviduct.

It seldom happens that blood spots appear in large numbers. It is usually individual cases and is more likely to occur in the warm months. If one is trap nesting it is comparatively easy to find the individual offenders. In case the blood spots are occurring in too large numbers it would seem that the flock is being forced too much for production. An increase in the amount of hard grains fed will often diminish the number of blood spots. Do not have the roosts and nests too high.

CULL, CULL, CULL, AND PROFIT THEREBY.

DON'T WORM YOUR FLOCK UNLESS YOU ARE ABSOLUTELY SURE THAT IT IS NECESSARY.

We cordially invite every reader of this booklet to visit the **GRANDIN DEMONSTRATION FARM** located at Kennebunkport, Maine. We would like to have you see how the methods of feeding and management of poultry which we advocate, work out in practice. If you are not getting the financial returns from your poultry business, which are proportionate to your labor and investment, why then be satisfied that you are on the right track? There is a way out of your difficulties. It's **THE GRANDIN WAY**. Visit with us. We will be glad to see you.

AU REVOIR

We sincerely hope that you have enjoyed reading this edition of SIMPLIFIED POULTRY KEEPING and that you have gotten some tangible good out of it. If this booklet has no other merit, it has that of originality. We have ideas of our own on the subject of poultry raising which, we believe, are based on good business practice, and to be in line with the laws of Nature. In other words, we have kept our feet on the earth. Bills must be paid. That is why we have not theorized, nor made an attempt to be scientific.

If, in the treatment of any particular phase of poultry management, we have not been specific enough, or, in case you have a problem of any sort which we have not touched upon that is bothering you, we will be pleased to have you write us. We will be only too glad to help you if it is within our ability to do so. Please address your communication to POULTRY SERVICE DEPARTMENT, D. H. GRANDIN MILLING CO., JAMESTOWN, N. Y.

Our Poultry Service Department is maintained with the distinct purpose of helping our customers. We have in our employ a corps of practical field men. Whenever possible, personal calls will be made on poultrymen, if requested. If this cannot be done, a prompt reply to questions will be mailed.

EGG RECORD CARDS, BROODER ROOM RECORD CARDS, PLANS for: GRANDIN'S RANGE SHELTER, GRANDIN'S LAYING HOUSE and GRANDIN'S PERMANENT BROODER HOUSE will be mailed free upon request.

D. H. GRANDIN MILLING CO.
JAMESTOWN, N. Y.



The Mark of Quality